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CATALOG No. F-12
AIA. FILE No. 4.D.3

U. S. PATENT OFFICE
APR - 8 1959
DIVISION 15

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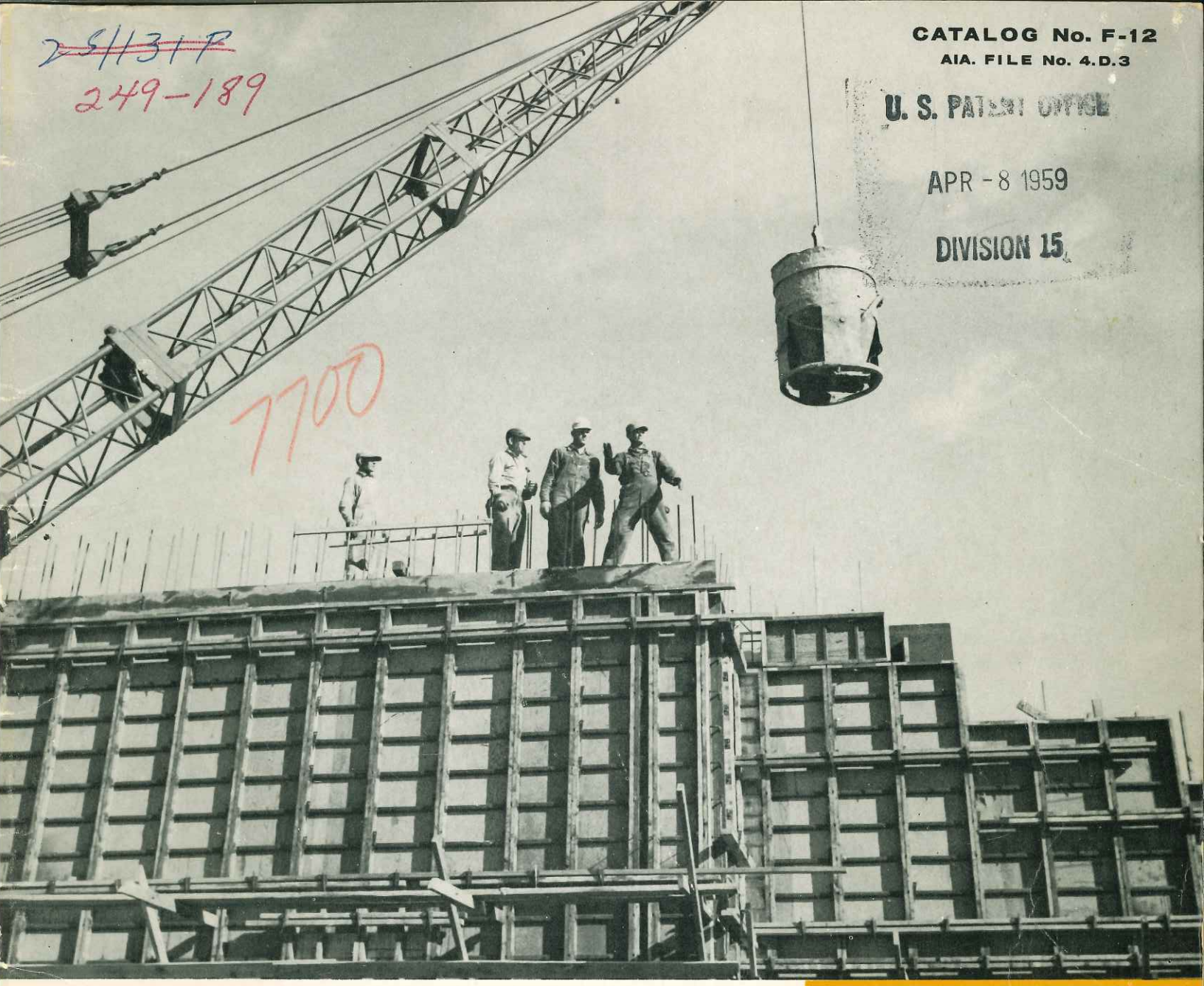

SYMONS
CONCRETE FORMING EQUIPMENT

SYMONS CLAMP & MANUFACTURING COMPANY
4249 DIVERSEY AVENUE • CHICAGO 39, ILLINOIS • PHONE DIckens 2-5141

PRODUCTS

- Wood-Ply Forms
- Steel-Ply Forms
- Mag-Ply Forms
- Wide Panel Forms
- Lo-Wall Forms
- Culvert Forms
- Form Hardware
- Form Ties & Accessories
- Scaffold Brackets
- Safety Shores
- Column Clamps

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CATALOG No. F-12
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free engineering and field service

ENGINEERING SERVICE

Symons experienced engineers have the ability to tackle any forming job—large or small—usual or unusual. This is your assurance of fast, efficient, money saving form erection. With your plans, our engineers will prepare complete form layouts, bills of materials and they will make recommendations for the best and least costly method of forming.

FIELD SERVICE

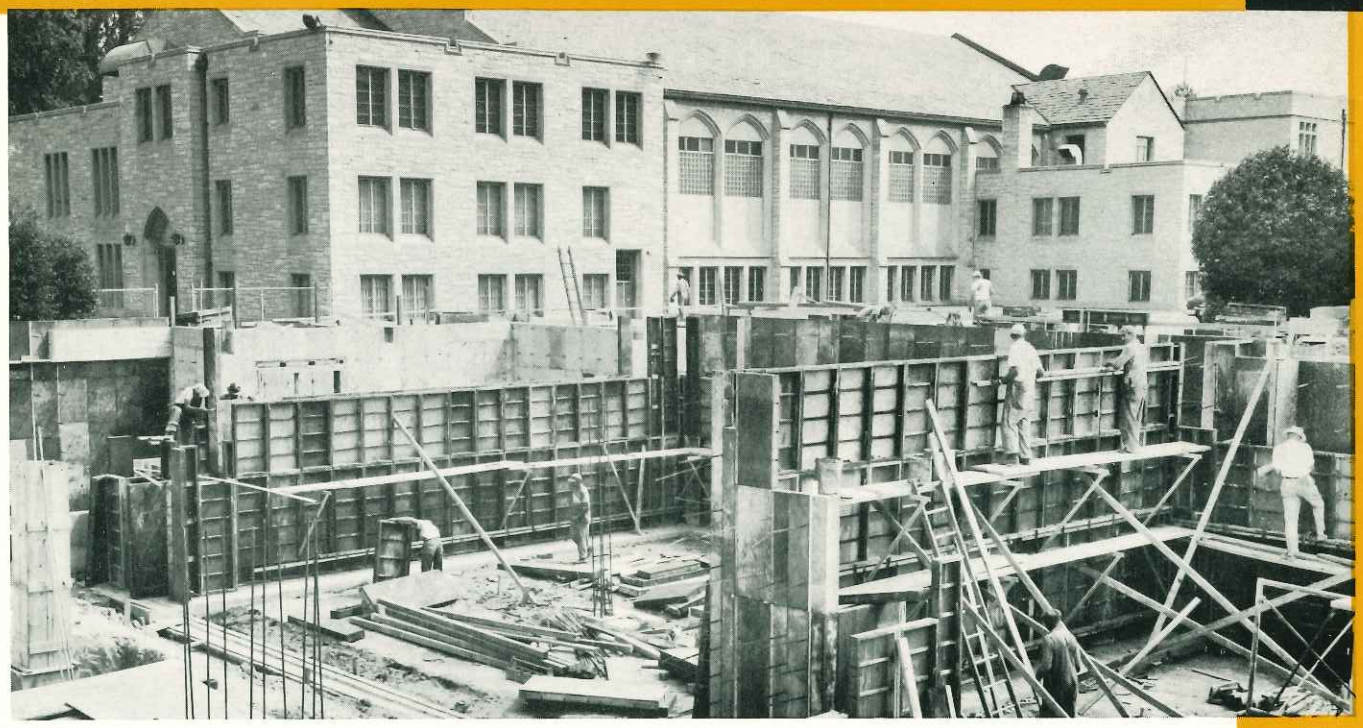
Your Symons Field Representative is trained and experienced. A concrete forming engineer in every sense of the word, he can help you to use Symons products efficiently so that you will save time, labor and materials. He is ready and able to advise you on form erection, pouring and stripping methods. You can call on him to assist you on any forming problems you may have.

SALES SERVICE

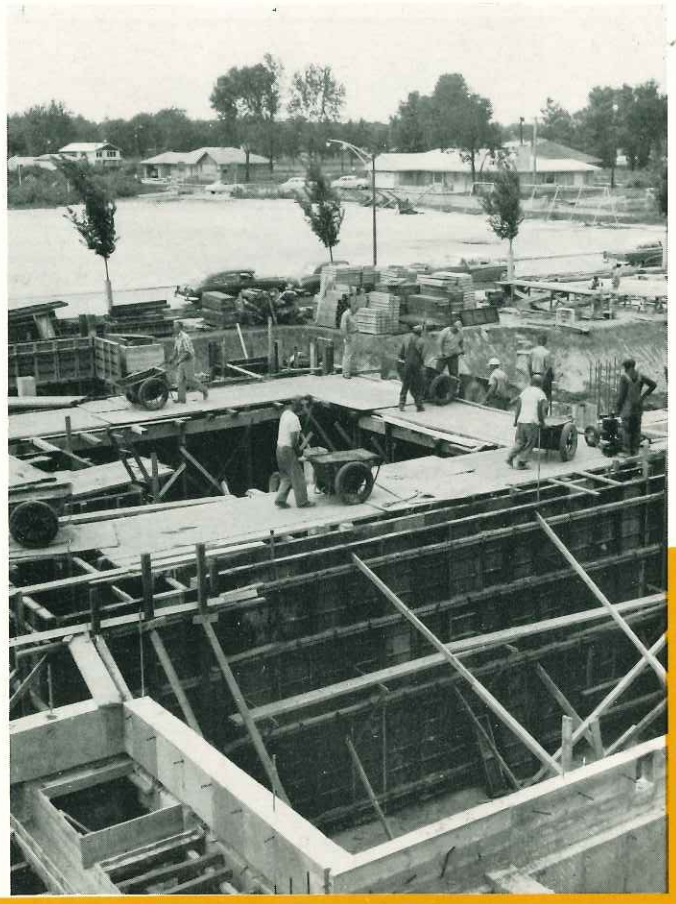
Symons ability to have available products for prompt shipment is highly important in Symons Sales Service. Our warehouses and representatives are strategically located throughout the United States, Canada, and many foreign lands. Conveniently located stocks of products are your assurance of the best of service at all times.

symons does a complete service job

Symons



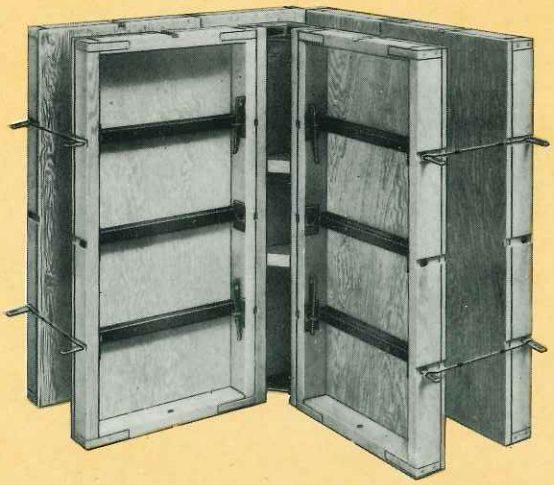
Typical of the services provided by Symons was the Queen of All Saints Church job at Chicago, Illinois. About 30,000 square feet of forming was erected by the L. J. Graf Construction Company of Chicago. Wall thicknesses varied from 12 to 20 inches and in heights from 4 to 14 feet.



Engineering Service provided complete job layouts and cost sheets. The job had many complicated pilasters and corners, but detailed forming plans helped to speed erection time.

Field Service suggestions by Symons representative on-the-job, Dick Koziarz, helped to save on costs. Despite the need for heavier than usual pouring on some walls, recommendations of minimum waler set-ups proved economical.

Sales Service shipped 9,350 square feet of forms along with necessary hardware and accessories to the job site. Prompt service helped to avoid unnecessary and costly delays.



CORNERS
simple to erect

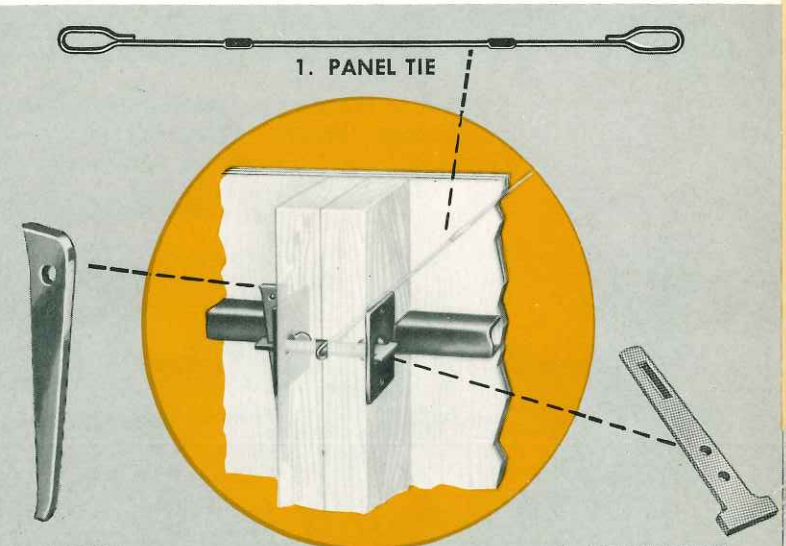
THE ANSWER TO LOWER FORMING COSTS

ERECTING: the forms are joined, tied and spread by a simple, sturdy method in one operation. The system allows for horizontal or vertical set-ups in combinations to any wall height. The forms safely contain heavy concrete pressure and walers are used for alignment only.

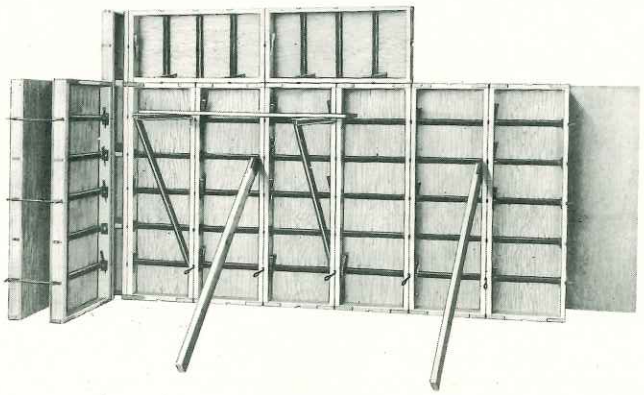
STRIPPING: The hardware is easily removed and the forms are released and pulled back. Ties are broken back and the result is a clean finished wall.

only 3 basic pieces

The key to the system is the simple hardware arrangement. The connecting bolt is inserted through the adjoining forms and the loop of the tie. The wedge is inserted into the bolt, locking and joining the panels in one operation.



PILASTERS
easy to set up



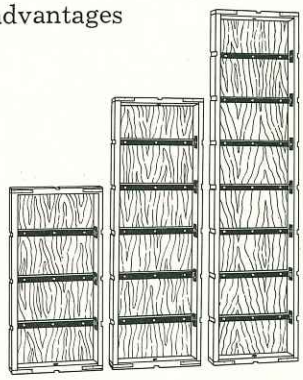
BRACING AND SCAFFOLDING
only wedge and bolt needed for attachment

High Strength Panels
Set-up with basic hardware.

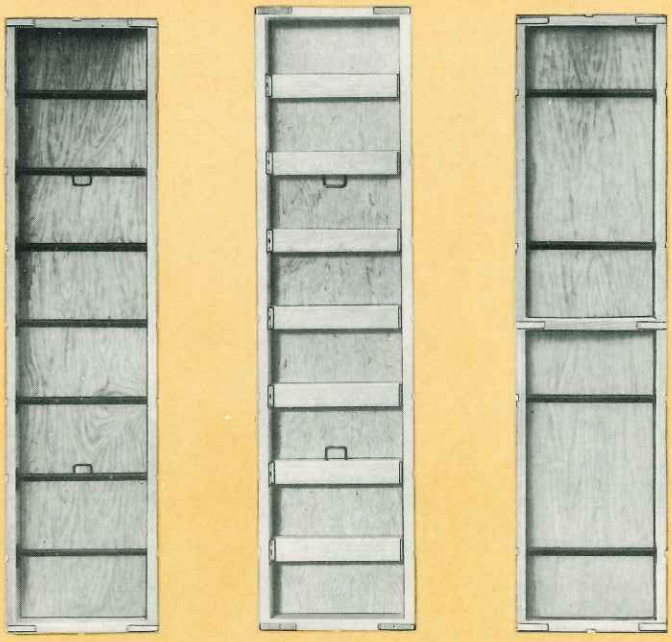
SYMONS FORMING SYSTEM

The Symons Forming System offers a range of precision factory built forms made with wood, steel or magnesium frames. Combined with a simple hardware system, the forms are quickly erected and stripped. This plus the fact that the forms can be reused many times means a real savings in time and labor costs. *Accuracy, Speed,* and *Long Life* are the advantages offered by Symons.

Standard panels are based on modules of two feet — two feet wide and four, six or eight feet high are the usual sizes. Fillers vary from one to twenty inches in width.



2′ x 4′ 2′ x 6′ 2′ x 8′



High Strength Panel

"Champ" Panel with Cross Members 12″ O.C.

Light Cons't Panel with Carrying Bar

Note: 6′ and 8′ High Strength and Champ Panels are furnished with handles.

WOOD-PLY FORMS

High Strength Panels

Recommended for pouring concrete walls with pressures up to 1,200 pounds per square foot. This heavy duty form has steel cross members on 12″ centers. The structural select 2 x 4 rims back up the durable ¾ plywood face. Weight averages about 5 pounds per square foot.

"Champ" Panels

Designed for light commercial and residential work, it is also very practical for high pours. This economical form has 2 x 4 cross members that lie flush against a ¾ exterior grade plywood face.

Rail Plates located at each end of the cross members transmit pressure to the panel tie and prevent wear of the frame.

Available with cross members on 12″ or 24″ centers.

Light Construction Panels

Ideal for light or residential construction, where heavy pressure is not a factor. This light duty, but durable form has steel cross members on 24″ centers. A 2 x 4 carrying bar is optional.

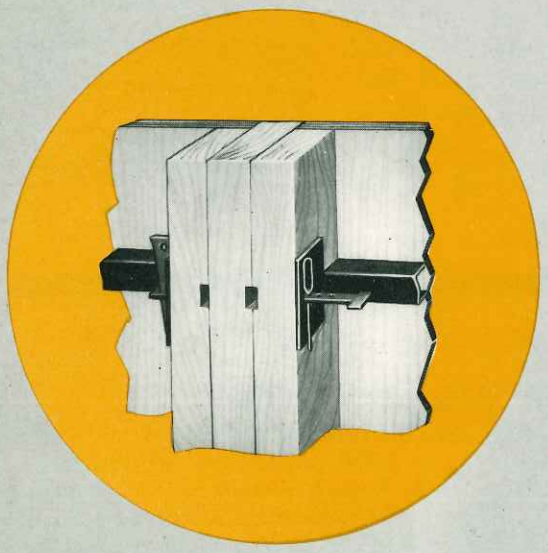
All Wood-Ply Forms are interchangeable

fillers for any size foundation

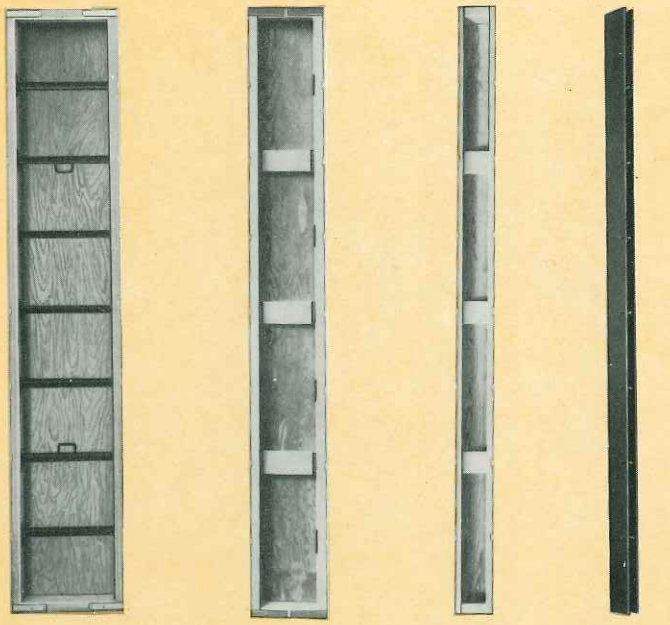
FILLERS

Panels which are less than 24″ in width are referred to as fillers, and they come in heights of 4′, 6′ and 8′. Standard widths available are 20″, 18″, 16″, 14″, 12″, 10″, 8″, 6″, 2″, 1½″ and 1″. Steel cross members are used on 20″, 18″ and 16″ fillers for added strength. Fillers 6″ to 14″ have 2 x 4 cross members. All steel fillers are available in 2″, 1½″ and 1″ sizes.

Symons complete range in sizes of prefabricated fillers makes it easy to construct any size foundation.



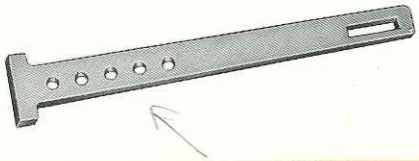
Small Filler Set-Up



20″ Steel Cross Member Filler | 12″ Filler All Wood | 6″ Filler All Wood | 2″ Filler All Steel

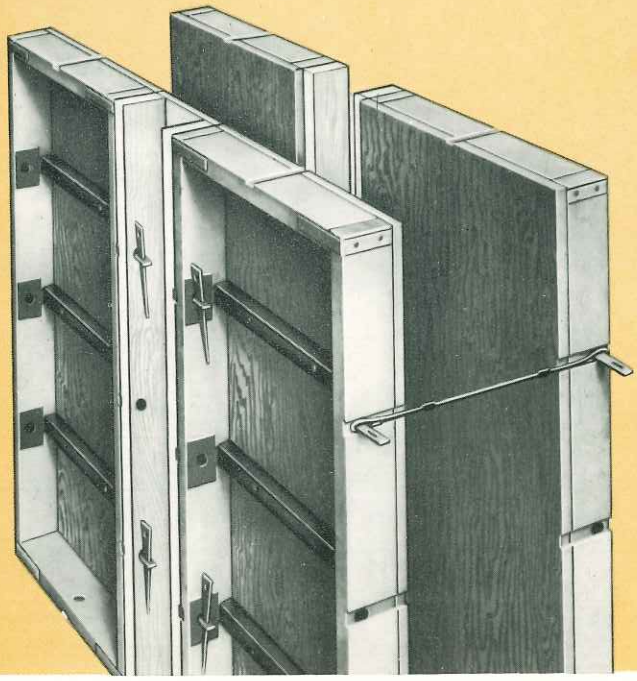
LONG CONNECTING BOLT

Allows up to 4″ of fillers to be placed between panels.



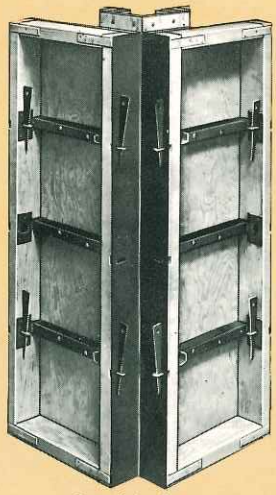
JOB-BUILT FILLERS

When it is necessary to build fillers in the field, one of the most efficient methods is to use 2 x 4's that are drilled and dadoed similar to standard panels. With the holes and dadoes in the same relative position, the 2 x 4's form a shoulder for tacking ¾″ plywood for the desired width. Standard form hardware can be used to secure the fillers to adjacent panels.

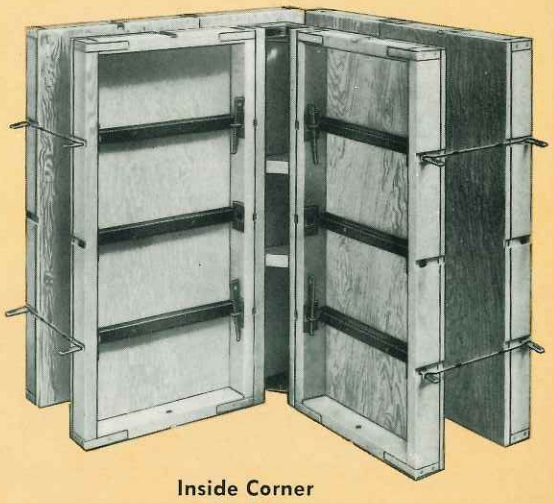


INSIDE AND OUTSIDE CORNERS

Outside corners are steel angles that lock adjoining forms together to make a 90 degree angle. The forms used adjacent to the outside corner are equal in width to the wall thickness plus 8″ to allow for the 8″ x 8″ inside corner piece. For example, the outside corner forms for a 10 inch wall would be an outside corner piece plus an 18″ filler on either side. This allows ties to pass directly across from panel to panel. Inside corner form is set up and erection is continued toward the center of the wall with necessary panels.

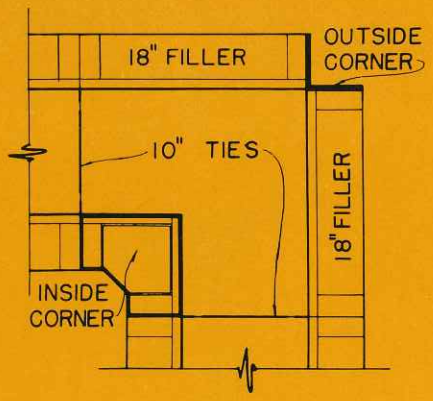


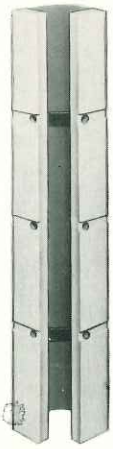
Outside Corner Set-Up



Inside Corner Set-Up

DETAIL OF CORNER SET-UP



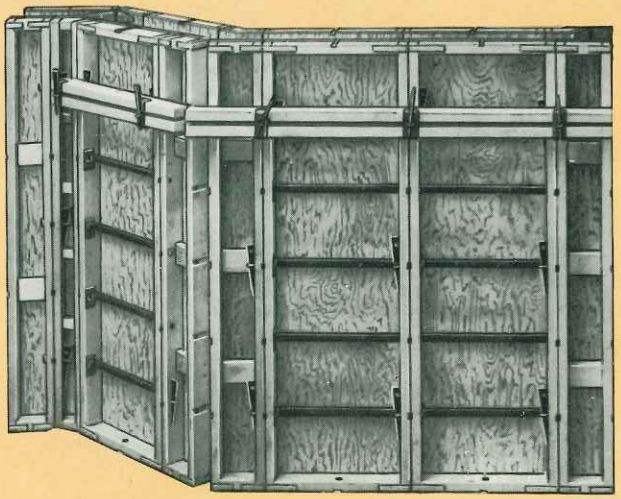


PLASTIC INSIDE CORNER

The plastic inside corner is designed for easy stripping and long life. The durable plastic face leaves an attractive finished concrete corner with a ¾″ radius. Brackets hold the form rigid while pouring and after the connecting hardware is removed, the corner piece becomes flexible and is easily stripped.

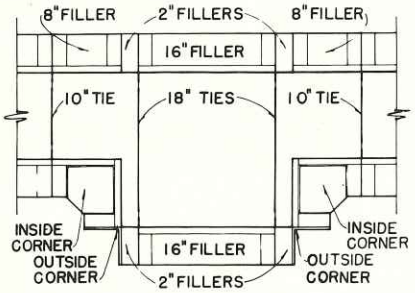
BAY CORNERS

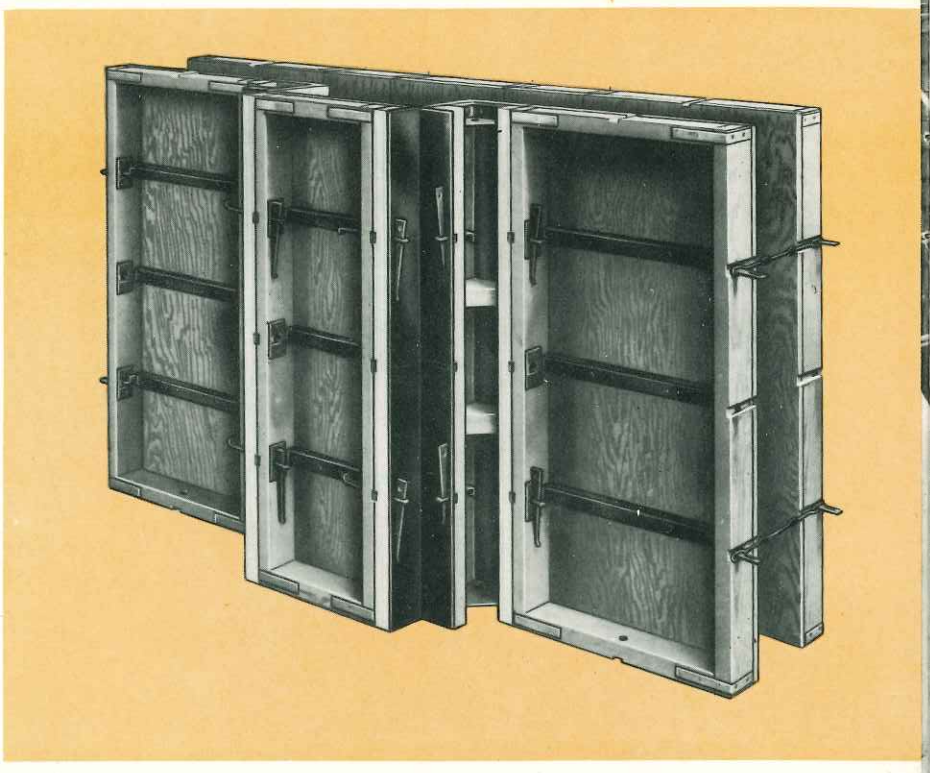
Inside and outside bay corners are available in 4′, 6′ and 8′ lengths and are designed to form an angle of 135 degrees. The outside bay corner is hinged so that it can be used on walls where the angles are larger or smaller. In such cases the inside bay corners would be built on the job. The widths of the faces of the inside and outside bay corners are 5″ x 5″ and 9″ x 9″.

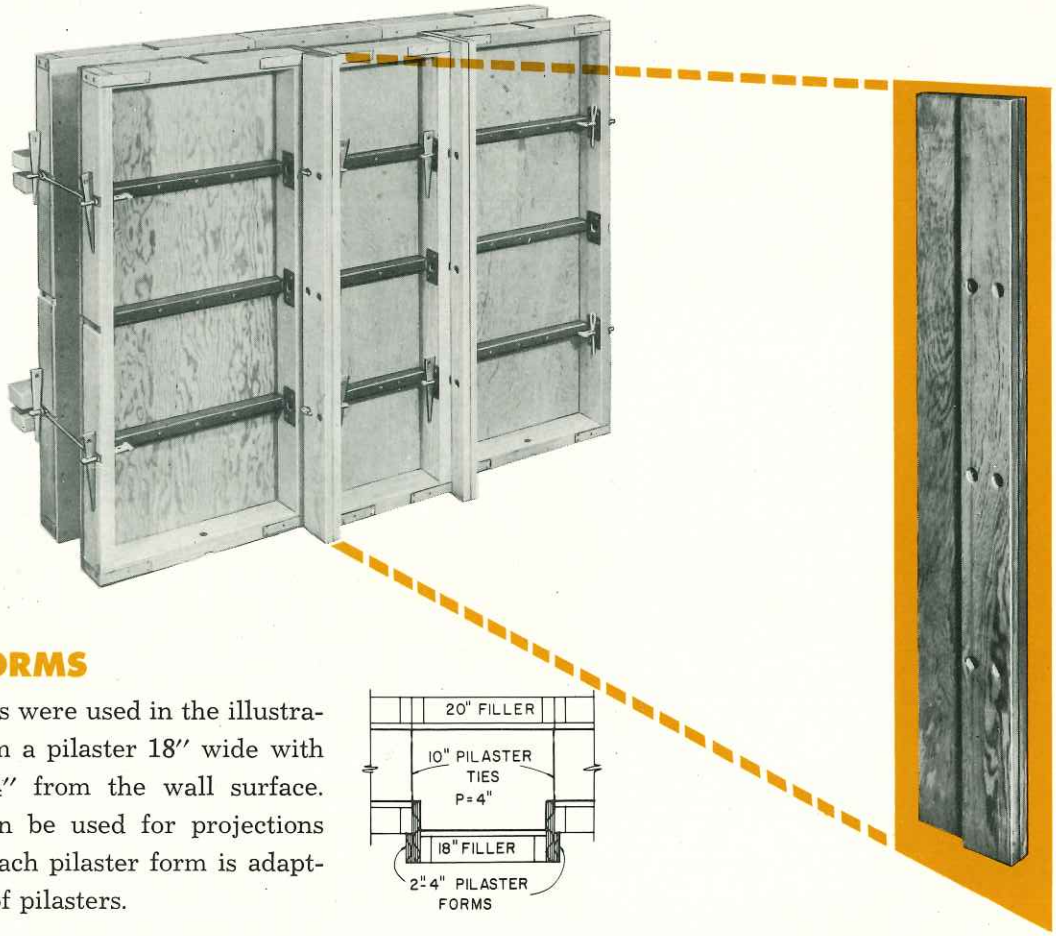


PILASTERS

One of the methods of erecting a pilaster which extends 8″ or more from the face of the wall is to use inside and outside corner pieces. Standard form hardware is used for connection and variations in size are achieved by placing fillers between the corner pieces. Allowance should be made so that ties can pass directly across opposite wall set-ups. Where pilasters extend out more than 12″, ties should be placed parallel to the pilaster face.





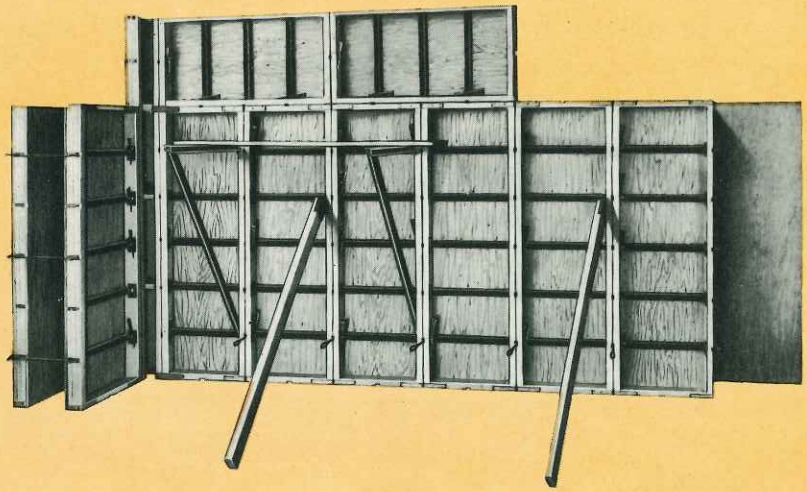


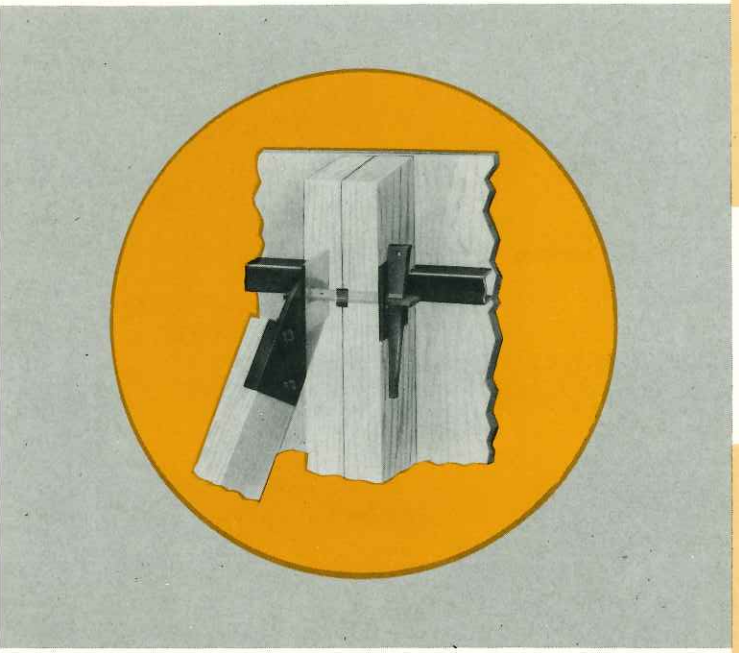
PILASTER FORMS

Two pilaster forms were used in the illustration above to form a pilaster 18″ wide with a projection of 4″ from the wall surface. Pilaster forms can be used for projections from 2″ to 12″. Each pilaster form is adaptable to two sizes of pilasters.

BRACING AND SCAFFOLDING

The Symons System allows for quick and easy attachment of bracing and scaffolding with standard form hardware. Braces may be erected by bolting brace plates to 2 x 4's and securing the braces to the forms with wedges and connecting bolts. Scaffolding may be connected in the same manner. By eliminating the need for nailing the results are longer life for the forms, the accessories and the lumber.

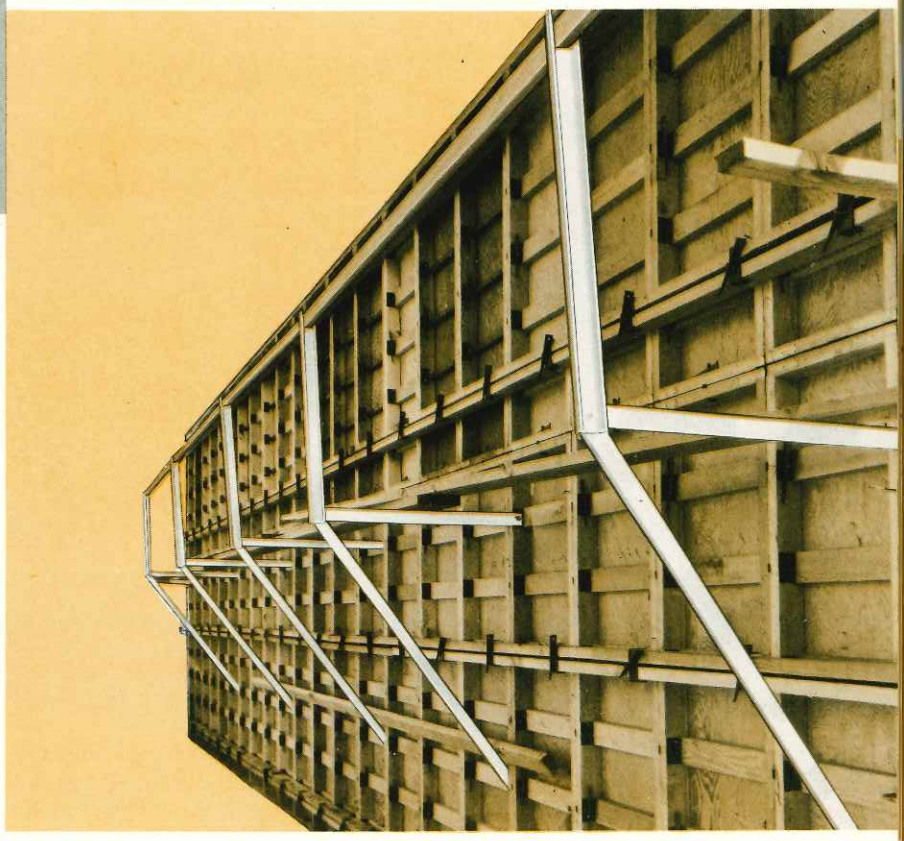




Brace Plate Fastened With Form Hardware

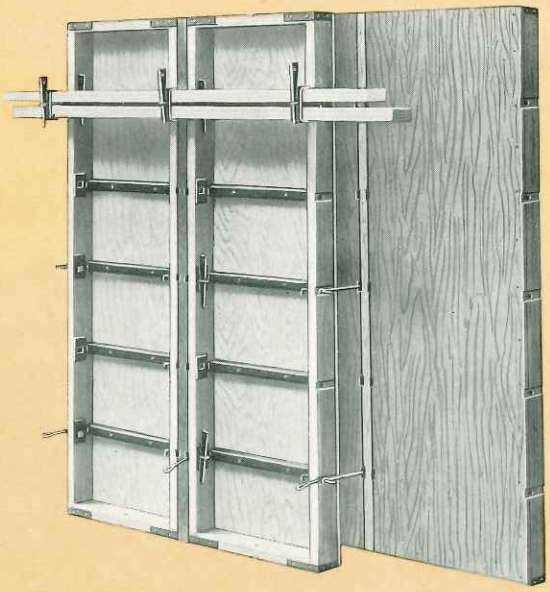
STEEL SCAFFOLD BRACKET

The Symons Steel Scaffold Bracket is a light compact unit that can be secured to the forms with standard form hardware. The bracket is completely collapsible to simplify handling and moving. Sturdy, it will easily accommodate three 2 x 10's for a platform and the handrail bars will support a 2 x 4 at a height of approximately 3′ above the platform. When the handrail is not required, the support bar may be pivoted down flush with the horizontal member of the bracket.

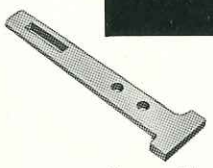


WALERS

Double 2″ x 4″ walers are used on one side at the top for alignment. As a safety measure on heavy pressure jobs, walers should also be placed on both sides of the forms one foot up from the bottom. Where forms are set above each other as on a 16 foot wall, walers should also be placed at the horizontal joint to insure neat alignment. The waler tie is threaded on the connecting bolt when the panels are joined. The waler plate holds the 2 x 4 waler members, eliminating the need for a pre-assembled waler. The forms are brought into perfect alignment by inserting a wedge through the opposite eye of the waler tie. The waler plate also provides a hard bearing surface for the wedge. Walers are put up after one side of the form work is erected.



SYMONS WALER APPLICATION

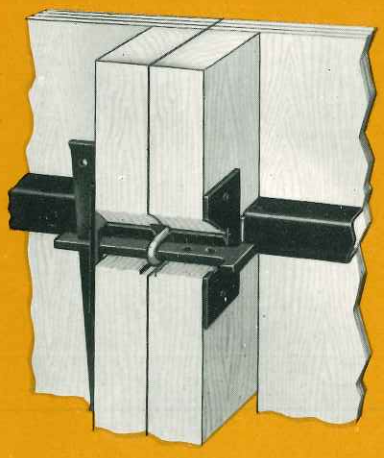


Connecting Bolt

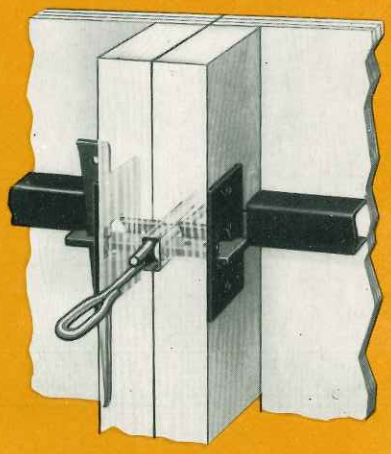
Waler Tie

Wedge

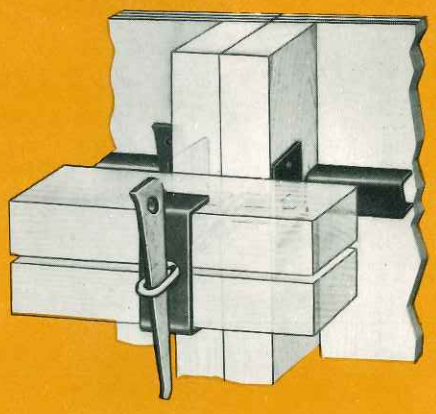
Waler Plate



Connecting bolt locks adjoining forms together and secures the panel tie by being placed through the loop of the tie.



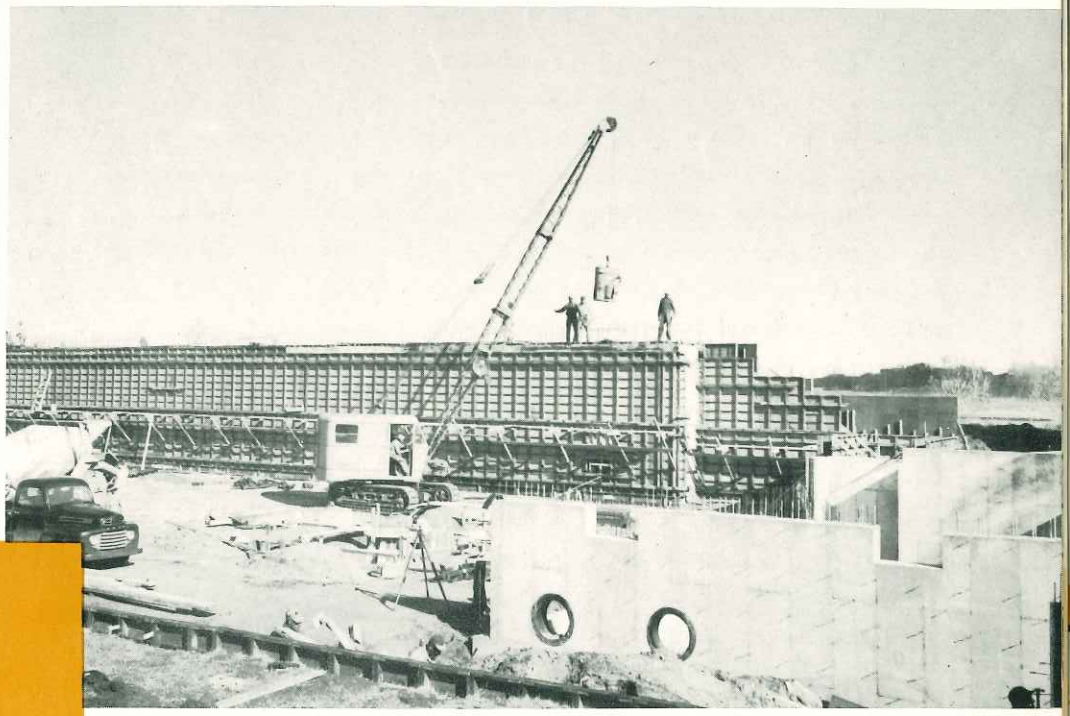
For a waler set-up, the waler tie is threaded with the panel tie and then locked into position by the wedge. Waler ties can be reused indefinitely.

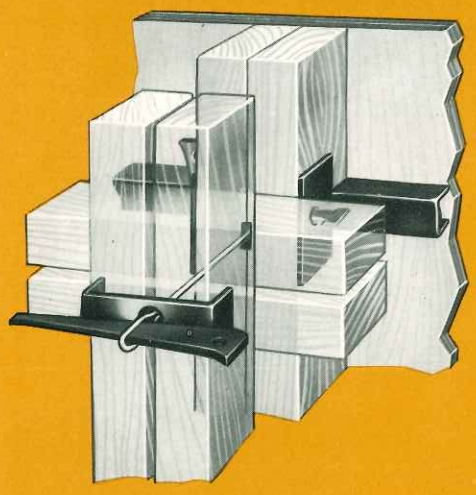


Two 2 x 4's are then placed over and under the waler tie. Waler plate is slipped over waler tie loop and the 2 x 4's, and a wedge locks the set-up.

ONLY 3 WALERS

Henry Carlson Construction Company, Sioux Falls, South Dakota, used only 3 walers with Symons Forms on a 16′ high, 12″ thick wall for the City Water Treatment Plant, Sioux Falls. 10,000 square feet of Symons High Strength Panels were reused 12 times on the job, resulting in considerable saving of labor, material and a fast forming schedule.



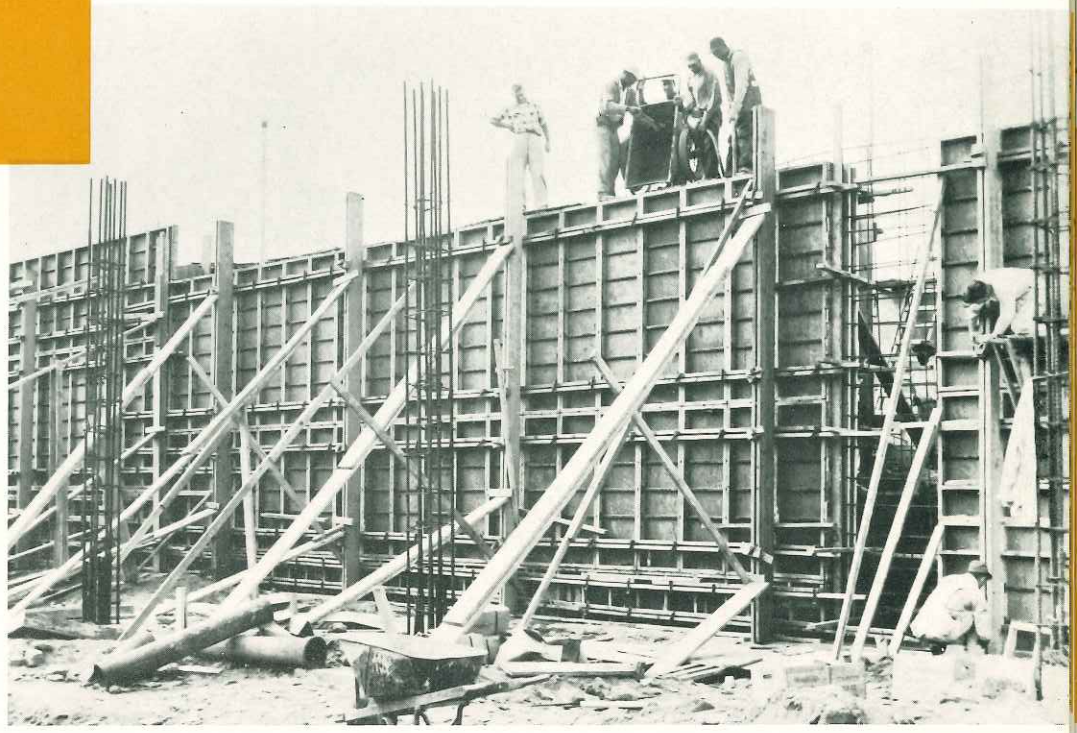


STRONGBACK APPLICATION

Strongbacks are sometimes used for vertical alignment where forms are double or triple decked on high walls. The strongback tie is usually 3⅝″ longer than the waler tie and is also secured to the connecting bolt.

STRONGBACKS CUT COSTS

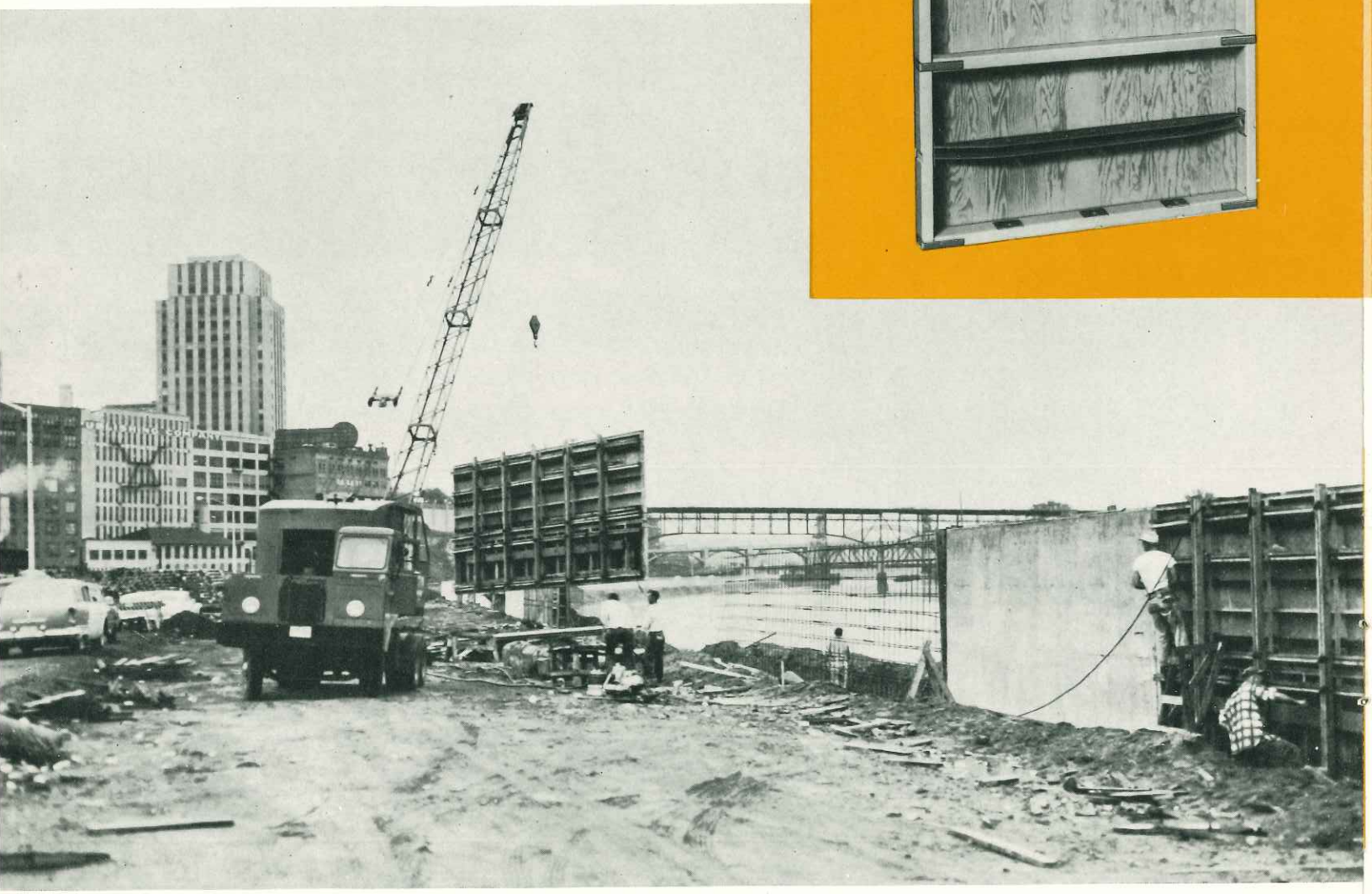
Joseph R. Farrell, Inc., Philadelphia General Contractor used 2″ x 12″ strongbacks which were held in place by 12″ ties to keep the walls perfectly plumb. Walls were 18 to 20 feet high. The strongbacks permitted continuous pouring of the foundation walls of the Cardinal Dougherty High School and resulted in a savings of 25% of forming costs. About 5,522 square feet of High Strength Panels were used on the job.



gang forming with wide panel forms

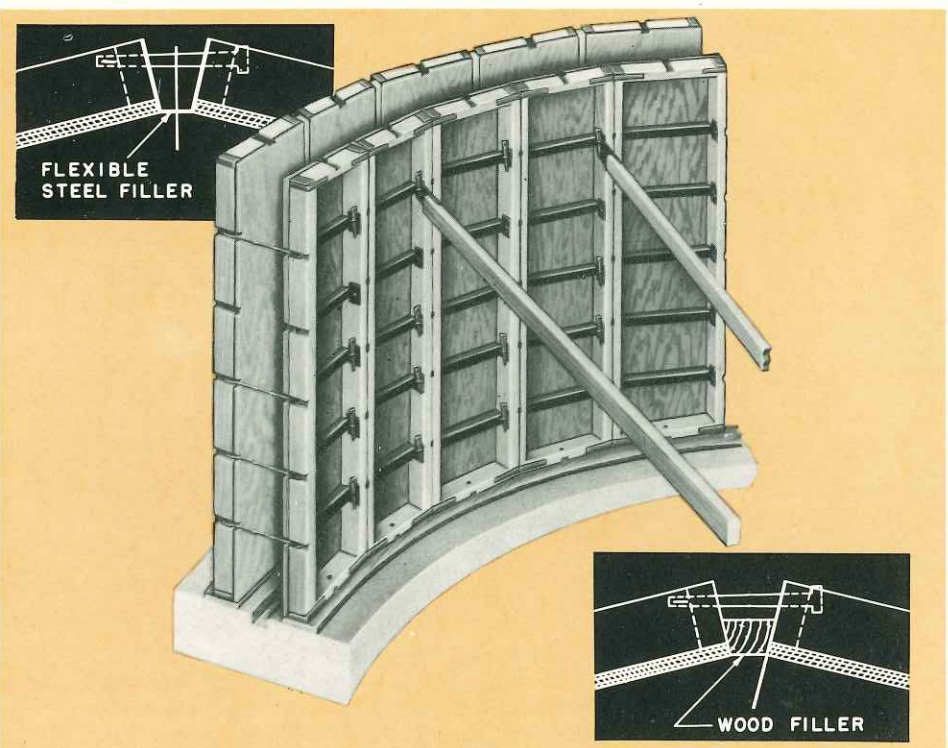
STEEL STRUT WIDE PANELS

Symons Wide Panel Forms have steel struts and 2 x 4 cross members to strengthen the panel and minimize deflection when subjected to heavy pressure. Tie holes in the steel struts allow the insertion and removal of special ties when the panels are connected in gang sections. Standard form hardware is used to make up the sections. Panels are built in 6′ and 8′ lengths and 30″, 36″, 42″ and 48″ widths. A 5,000 pound Williams "Little Giant" tie is used to tie opposite form sections.



GANG FORMING . . . Pouring of a 2,400 foot long retaining wall along the north bank of the Mississippi river in downtown St. Paul was accomplished with Symons Wide Panel Forms made up in gang sections of 10′ x 24′ and 15′ x 24′.

Hurley Construction Company, St. Paul contractor handling the job, used only 5,400 square feet of Symons Wide Panel Forms. However, they were able to reach a maximum total output of 700 linear feet of wall per week which indicates that the major portion of forms were reused each and every day. Walls were battered, 19 inches at the bottom and 12 inches at the top.

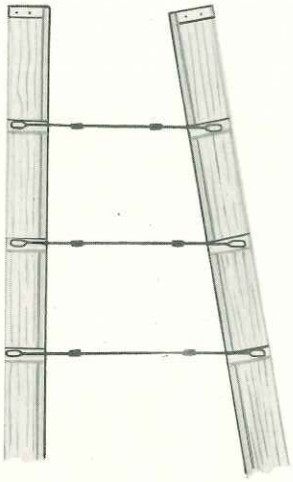


CURVED WALLS

Symons Forms are adaptable to small as well as large circular walls. With the forms and small fillers, a true curve is held and only a minimum of waling and bracing is necessary.

Flexible Steel Fillers are ideal for curved wall forming. The 1″, 1½″ or 2″ sizes are suitable for most any radius. Ties run directly through the slots in the center of the fillers. These fillers are placed between the standard panels as illustrated in the upper left hand drawing.

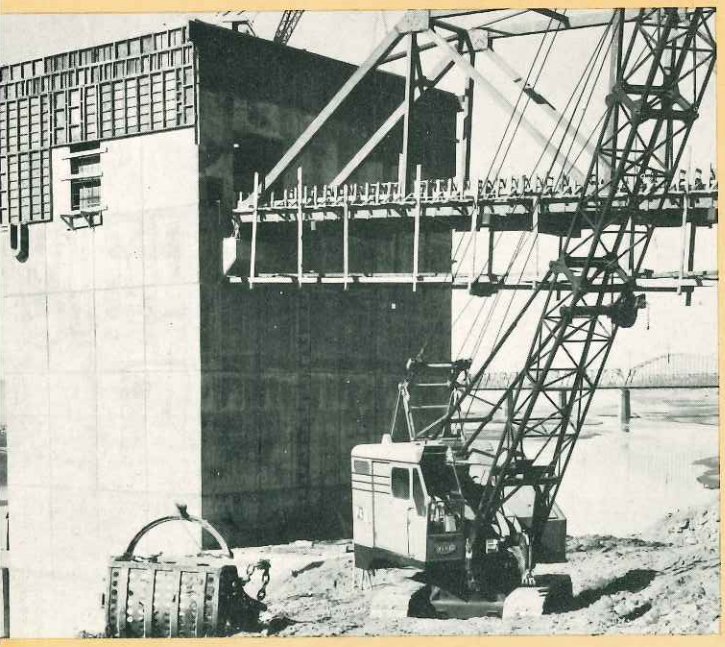
"V" shaped wooden fillers are another method of forming curved walls. They are placed between the panels and ties run between fillers and panels. Detailed specifications of fillers as shown in lower right hand drawing are furnished by Symons Engineering Department.



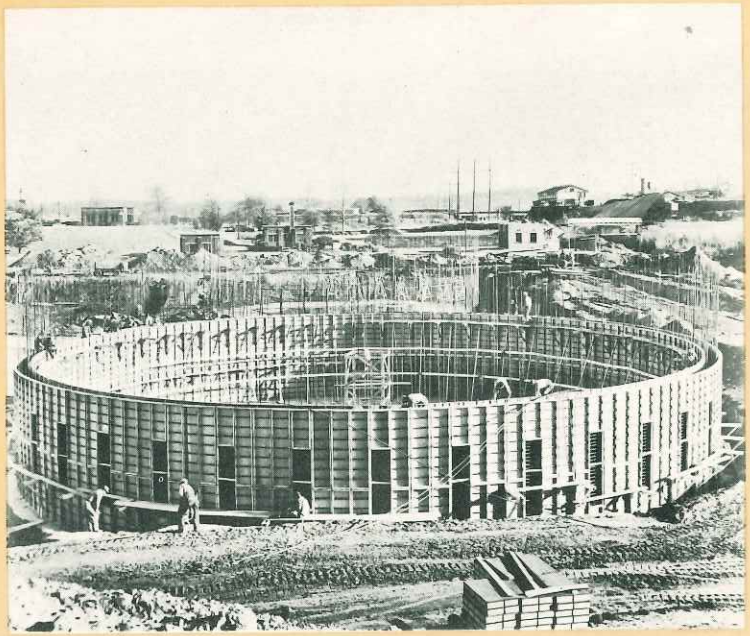
BATTERED WALLS

Battered walls are erected very much like vertical walls. The only difference is that sizes of ties vary to conform to the changing wall thickness. Symons Engineering Department furnishes exact specifications of the different tie lengths.

At Camden, Arkansas, James Leck, General Contractor, Minneapolis, Minnesota is erecting the inside forms on a 16′ battered wall. Ties were placed in positions when the outside forms were erected. After placing reinforcing steel, the inside forms were erected and secured to the ties.

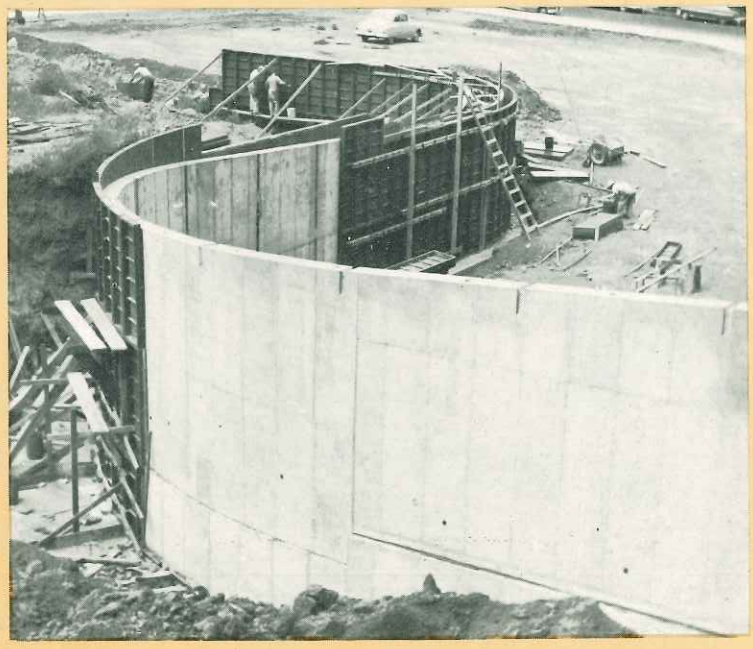


64 INTAKE TOWER, Kaw Power Station, Kansas City, Kansas, R. G. Aldridge, General Contractor—Symons forms were used for architectural concrete on exterior walls and for intricate form work on the interior. Many corbels, inserts, buttresses, ladders and other details were required.

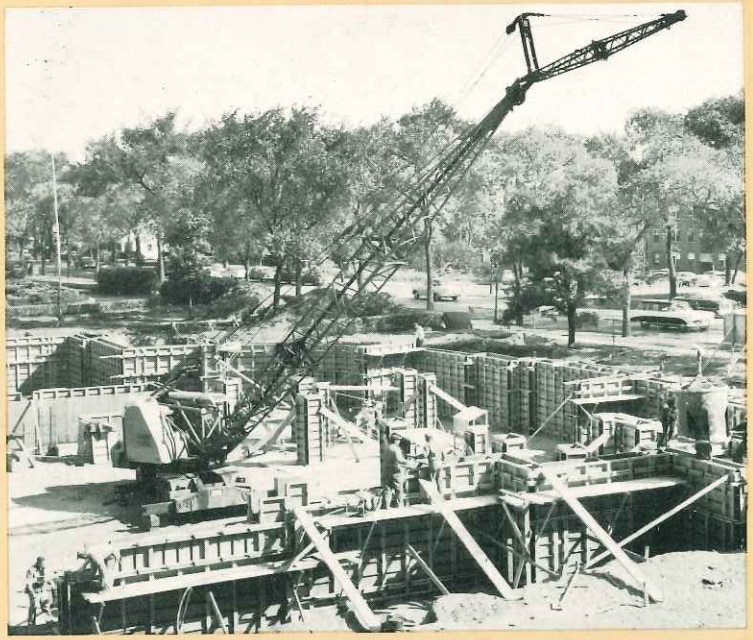


SEWAGE DISPOSAL PLANT, Birmingham, Alabama, Sullivan, Long and Hagerty, General Contractors—concrete walls 29 feet high, tank 100 feet in diameter. Pour openings were left to hold concrete drop within prescribed limits. Openings were later closed with panels as concrete was brought up.

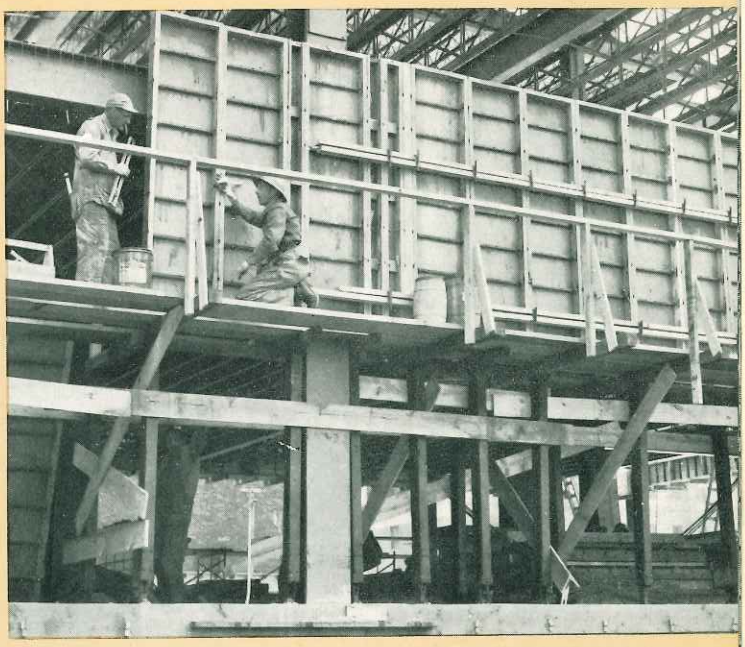
60′ HIGH BIN SECTION, Jefferson County, Alabama, Sewage Treatment Plant, Sullivan, Long and Hagerty, General Contractors—8,500 square feet of Symons Forms were used on walls, slabs, beams and stairways. The forms were leap-frogged for successive lifts on the walls.



SERPENTINE RETAINING WALLS, Omaha, Nebraska, Peter Kiewit & Sons, General Contractor—30,000 square feet of forming on the job, walls were 20 feet high at the highest point and sloped to 8 feet high at its lowest point. Curves shaped to a radius of 15½ feet.



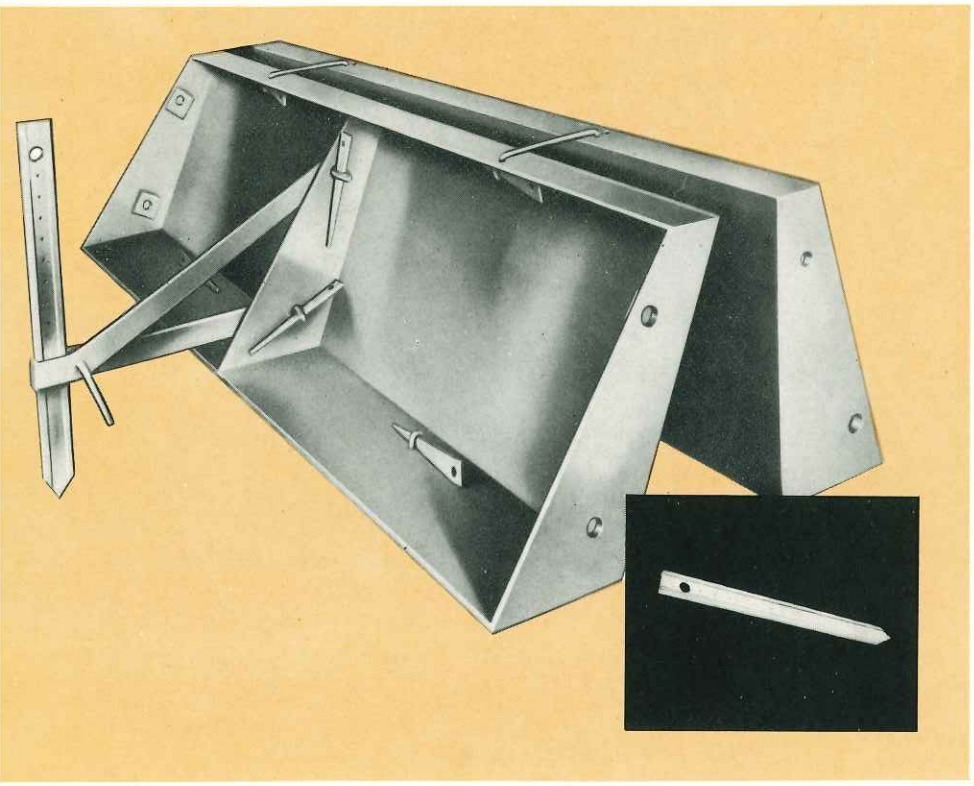
SCHOOL ADDITION, Chicago, Illinois, Fred Berglund & Son, Inc., General Contractor—two hundred yards of concrete were poured in one shift. Contributing to the speed were 17,500 square feet of Symons High Strength Forms used for curved walls, large pilasters and stepped footings.



SPANDREL BEAMS, Minnesota Mutual Life Insurance Building, St. Paul, Minnesota, William Baumeister Construction Co., General Contractor—Symons Standard Forms were used to frame 56,000 square feet of Spandrel Beams. Symons Shores were used throughout in beam construction.

RESERVOIR, Broadview, Illinois, Leonard J. Koslow Builders, General Contractor—Walls 15 feet, 10 inches high and 12 inches thick were poured in one lift. 8,000 square feet of Symons forms were used to form 17,000 square feet of vertical walls with more than 1,400 yards of concrete.

SEWAGE AQUADUCT, Streator, Illinois, Central Ironite Waterproofing Co., General Contractors — Engineering Dept. of Symons furnished detailed specifications for this special project. Symons Wood-Ply Panels, Column Clamps and Shores were used on the 525 foot long structure and supporting piers.



"LO-WALL" FORMS

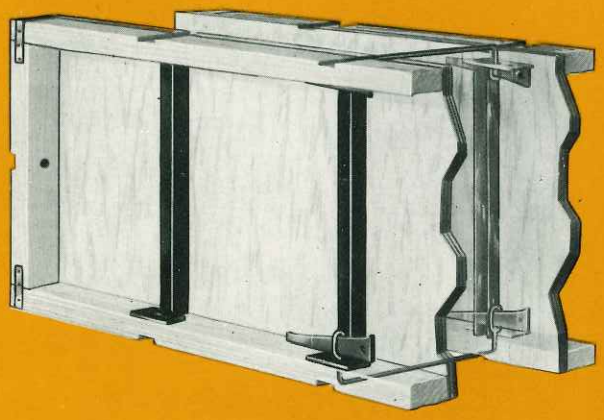
Symons "Lo-Wall" Forms made of high grade steel are designed primarily for slab-on-grade foundations of housing projects. They are also recommended for any standard size, multiple-reuse, low wall forming operation. Standard dimensions of the form is 12 inches in height by 8 feet in length and it is adaptable for battered as well as straight walls. Adjoining units are secured together with connecting bolts and wedges. When used as illustrated for opposite panel set-ups, metal base ties and wedges are all that are needed to spread and hold the forms at top and bottom. Prefabricated braces are also furnished with the forms.

CONSTRUCTION STAKES

Steel Construction Stakes are ideal for footings, bracing and low wall forming. Easily driven, straight and true, the stakes have nail holes to provide for attachment to lumber. Available in 12, 18, 24, 30, 36 and 42 inch lengths.

Wood Base Tie

Metal Base Tie



WOOD BASE TIE

Designed for use with Symons Wood-Ply Forms on low wall grade beam forming, ties plus wedges are all that is required to secure forms at top and bottom. There is no break-off point. Top ties can be reused indefinitely and bottom ties are below grade. The safe working load of Wood Base Ties is 2,000 pounds.

METAL BASE TIE

Adaptable for the horizontal use of Mag-Ply and Steel-Ply forms; and with "Lo-Wall" forms, Metal Base Ties have a recommended work load of 1,500 pounds. Like Wood Base Ties, they eliminate the use of cleats, band iron and nailing, thus increasing the life of the forms.

Base Ties available in half inch multiples from 4″ to 30″ in wall thickness.

"H" WIDE PANEL FORM

Symons "H" Form has galvanized strips to prevent splitting of the side rails and the form is strengthened by its "H" frame construction. Like all wide panel forms it can be used either horizontally or vertically. Two sizes, 4′ x 6′ and 4′ x 8′ panels, are the most popular with contractors. The "H" Form can be used interchangeably with any Symons Wood-Ply Form.

"H" Form

TIE ANCHOR FOR "H" FORM

When necessary the tie anchor allows ties to be inserted internally within the panel. Flat or wire ties can be installed quickly and only a connecting bolt is needed to secure the ties at these points.

WIDE PANELS

Many contractors prefer large panels for light and residential forming work. Project builders as well as small builders liked the idea of fewer panels per foundation and Symons developed its wide panel forms to meet that preference. Wide panels can be used horizontally for crawl space foundations or vertically for basements. They are ideal for any low wall foundation.

for Mag-Ply Forms

for Steel-Ply Forms

SIMPLE HARDWARE SYSTEM

Like Symons Wood-Ply Forms, the Mag-Ply and Steel-Ply Forms offer the same simple hardware system. Using only 3 basic pieces, the panel tie, the connecting bolt and the wedge, the forms are easily erected and stripped.

Although it is the same system, the basic hardware components are reduced in size to accommodate the smaller width and thickness of the frames. Be sure to specify Steel or Mag hardware and S-M ties when ordering for Mag-Ply or Steel-Ply Forms.

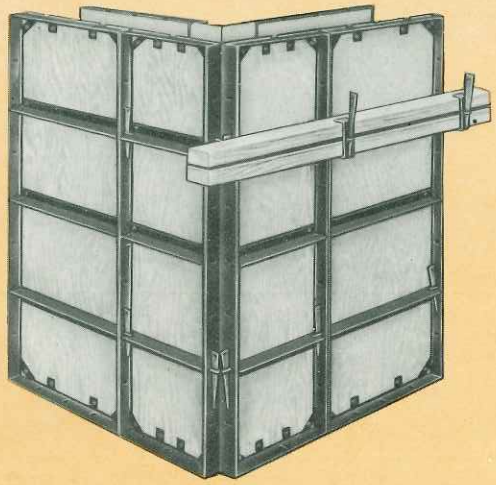
only 3 basic pieces

STEEL-PLY AND MAG-PLY FORMS

Symons offers two types of metal framed forms both designed for durability and long-life. Although the initial cost is higher than Symons Wood-Ply Forms, this is more than offset by the many reuses possible with these panels. Low-cost-per-use plus easier handling and stacking are just two of the reasons why these forms have gained increasing popularity with many contractors.

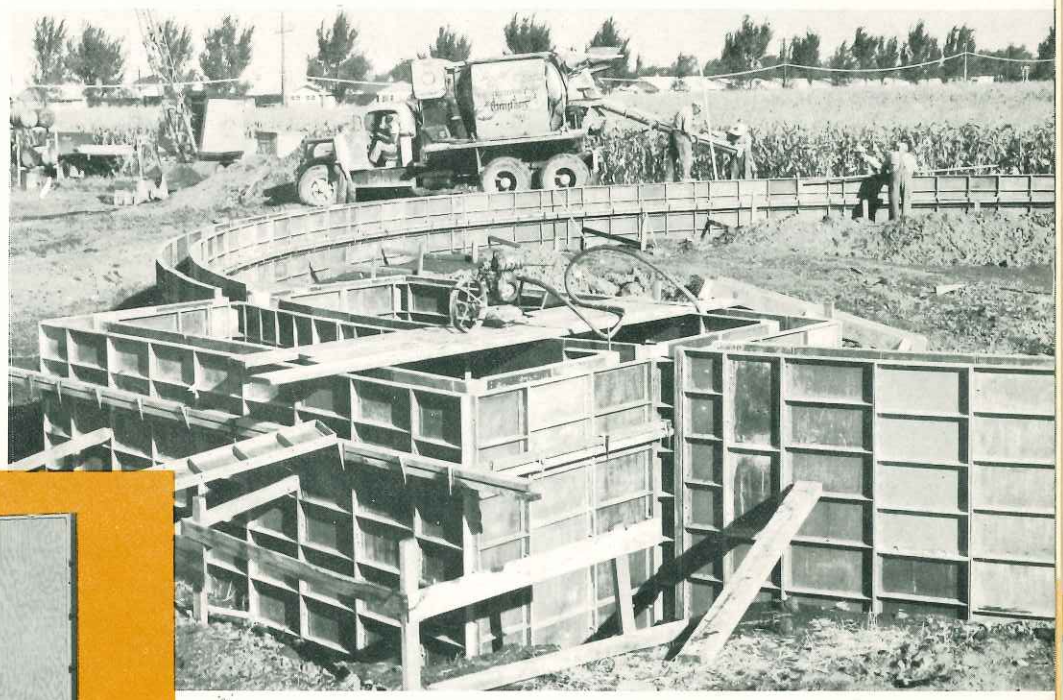
Complete Mag-Ply or Steel-Ply Catalog Available Upon Request.

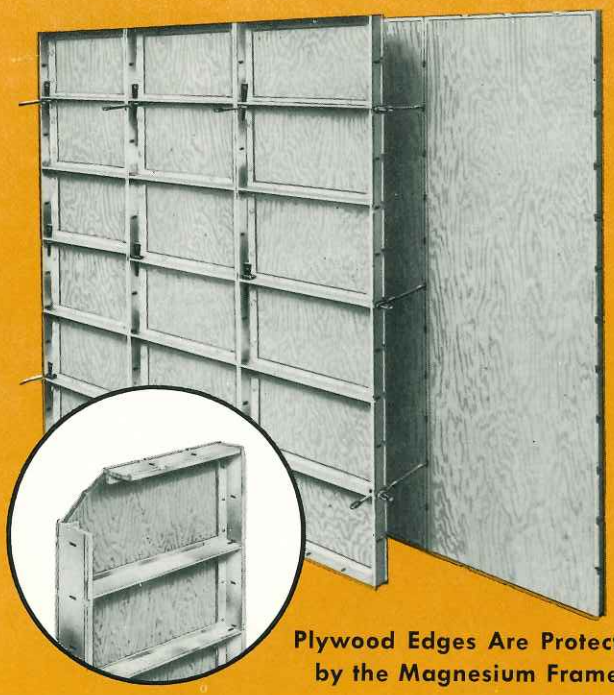
Mag-Ply Corner Set-Up


Steel-Ply Corner Set-Up

MAG-PLY FORMS

Symons Mag-Ply Forms are the lightest on the market today . . . weight averaging about 3 pounds per square foot. The frames of durable, rust-proof magnesium will last *indefinitely* and will not swell or shrink. The ½″ thick plastic-coated plywood face should be useable 100 or more times before replacing.

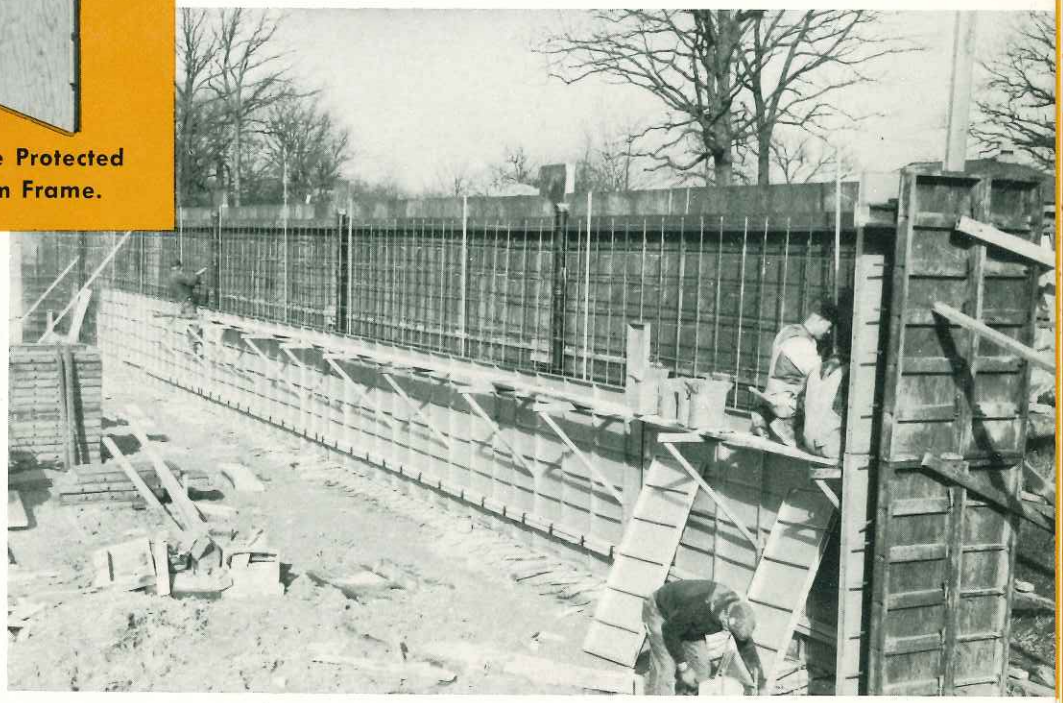




Plywood Edges Are Protected by the Magnesium Frame.

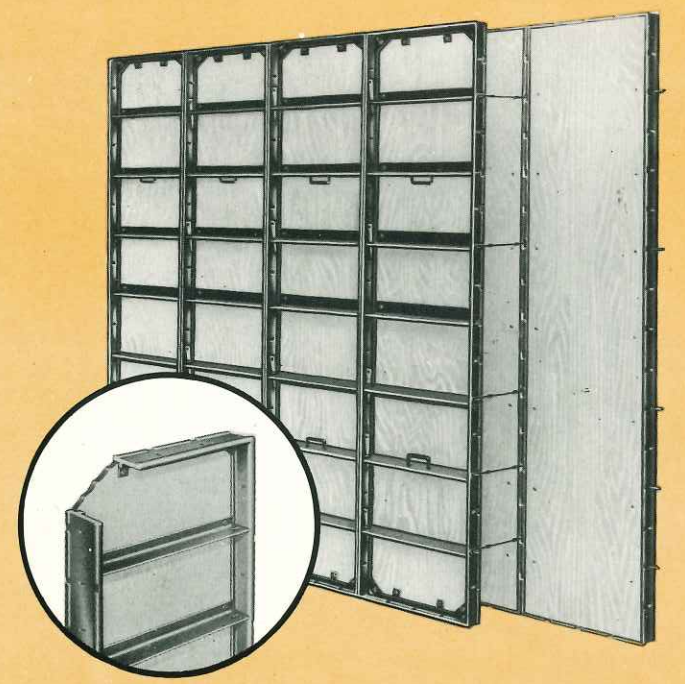
ADAPTABLE TO ALL FORMING JOBS

The light and efficient mag-ply form's ready adaptability on circular, battered, and cut up walls has pleased many contractors. Work is cut to a minimum in the field; the forms are furnished with all fillers required. Mag-Ply forms are available on a rental basis—rentals can be applied to the purchase price.



MAG-PLY FEATURES

Plywood edges are completely encased in the magnesium frame. The 2½″ thickness of the frame means more panels per truck load and less space for stacking and storage. Panel sizes are 2′ wide and 4′, 6′, 7′ and 8′ long. Fillers are available in any width required. Standard widths are 1″ and in multiples of 2″, from 2″ to 20″.



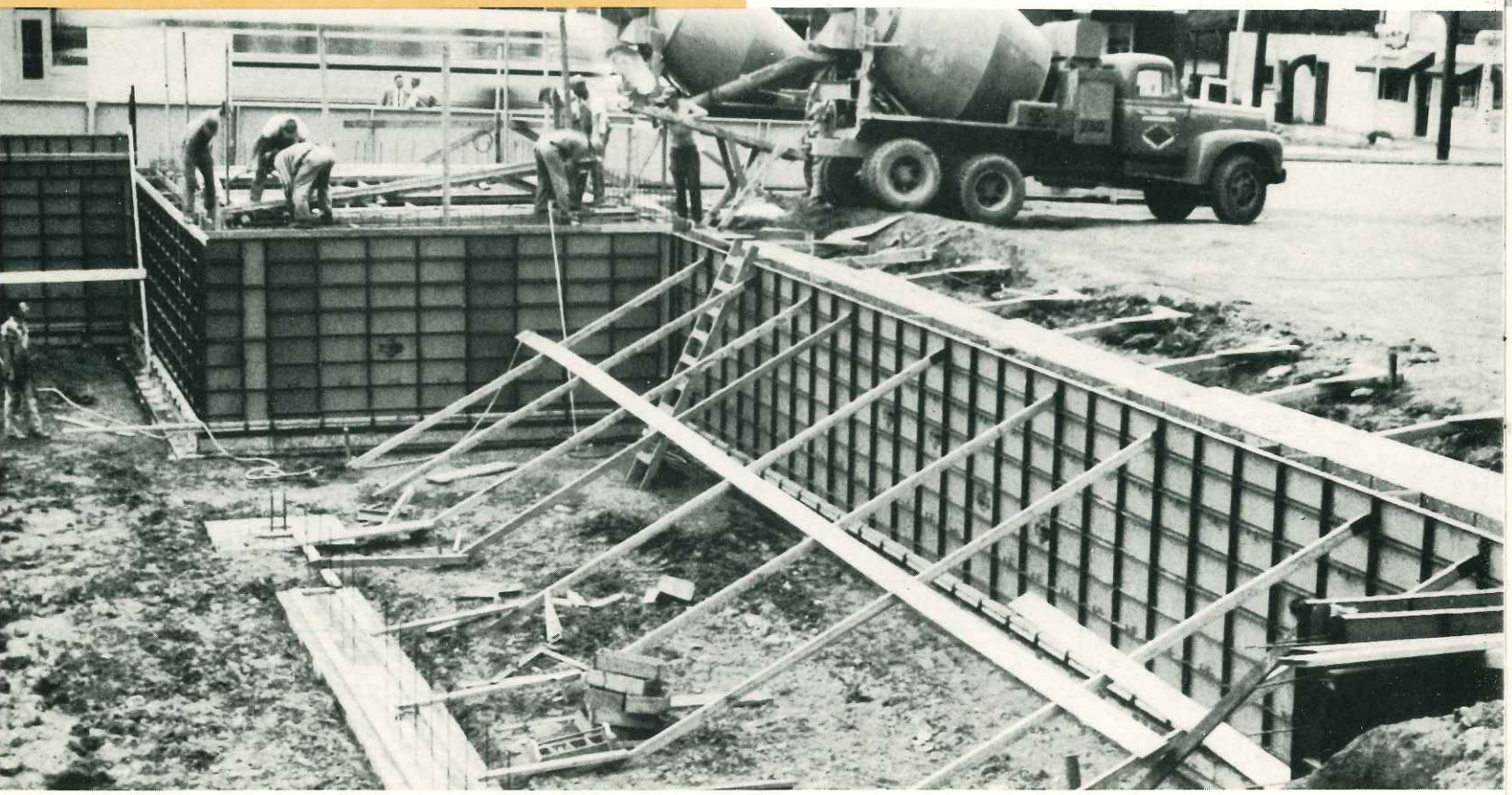
Plywood Edges Are Completely Encased in Steel Frame.

STEEL-PLY FORMS

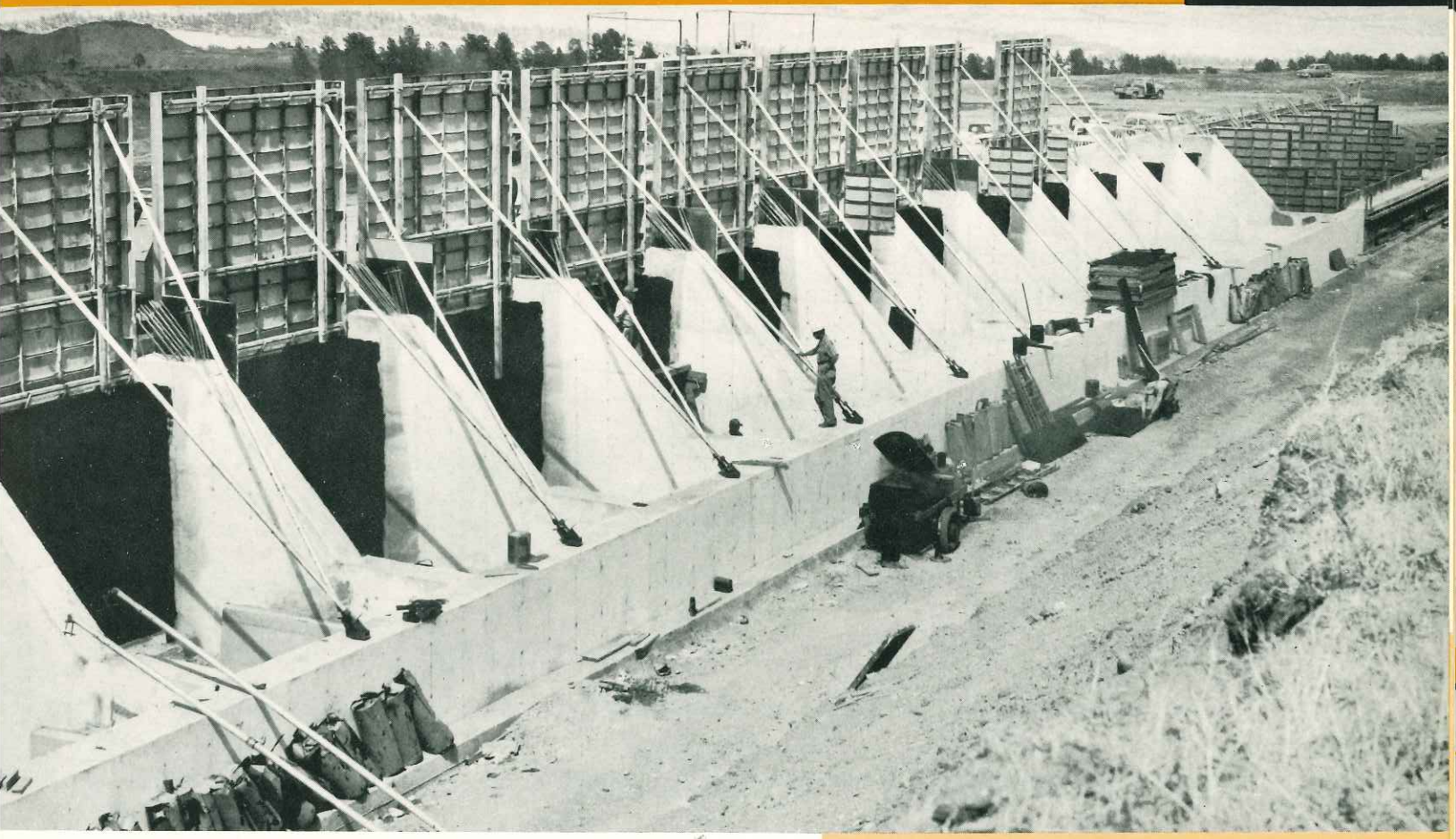
Symons new lightweight form has a rolled steel frame that completely encloses and protects the plastic plywood face. Width of the steel frame is only 2½″, compared to the 4⅜″ width of wood frame forms. Panels are 2′ wide in lengths of 4′, 6′, 7′ and 8′. Fillers are made in widths required — standard widths are 1″, 2″, 4″, 6″, 8″, 10″, 12″, 14″, 16″, 18″, and 20″.

Average weight of a steel-ply form is five-pounds-per-square foot, slightly less than that of a wood form of comparable size. Handles are provided in the 6′, 7′ and 8′ sizes to simplify carrying the forms. The welded steel frames will last indefinitely and the plastic plywood face should be useable for more than 100 times. Plywood may then be easily reversed or replaced. The efficiency and adaptability of steel frame forms on circular and battered walls, as well as straight or cut up walls, has pleased many contractors.

Steel-ply forms are available on a rental basis—rentals can be applied to the purchase price.



Steel-Ply Forms Can Be Used Efficiently for Residential, Light Commercial and Heavy Construction Forming.



Air Force Academy, Colorado Springs, Colo., T. F. Scholes, General Contractor, Long Construction Co., Sub-Contractor.

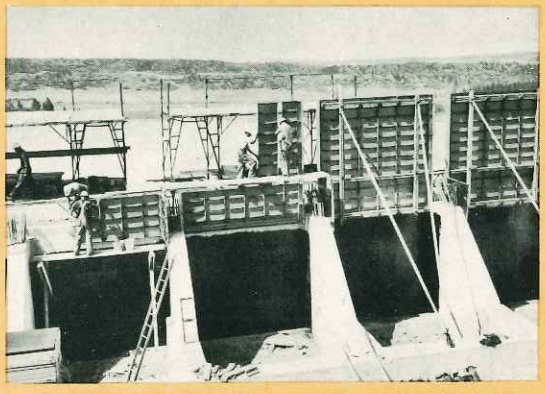
37,000 SQ. FT. OF STEEL-PLY FORMS ON 10,000 LINEAL FT. OF RETAINING WALL

Symons Steel-Ply Forms have earned their excellent reputation by serving effectively on a wide variety of forming jobs. On the Air Force Academy for example, 37,000 sq. ft. of Steel-Ply Forms were used on 10,000 lineal ft. of wall containing 24,000 cubic yards of concrete. Total forming involved approximately 600,000 sq. ft.

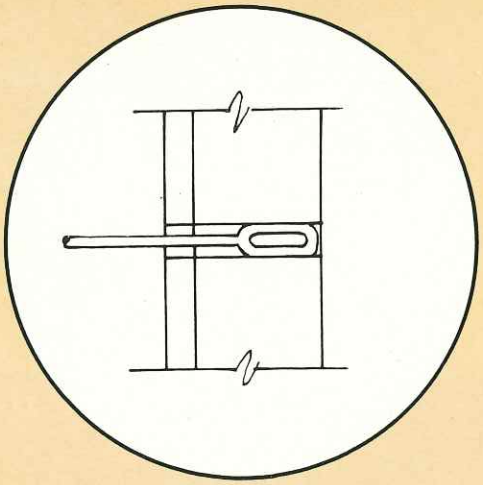
The retaining walls were battered and had counterforts on 14′ centers. Special 30″ wide panels were built by Symons to be inset in the wall face opposite the counterforts. This helped to eliminate extra waling and bracing.

The walls varied in heights up to 32 feet and in widths from 12 to 18 inches. In order to speed the job, the panel forms were preassembled into large units that could be placed by cranes. These units generally were two panels high and six wide to make a 16 x 12 foot assembly.

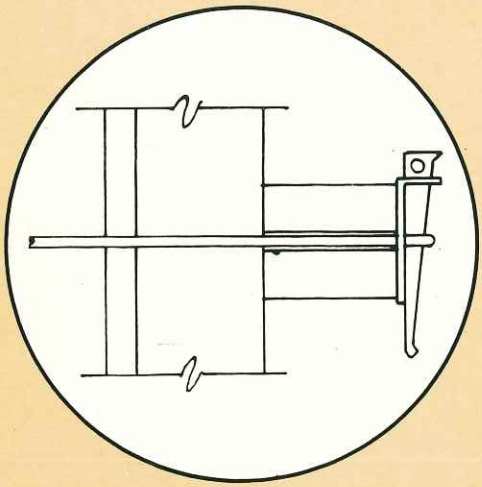
Ordinarily the high walls were concreted in three pours, each 70 feet long. Best weekly pour was 1,558 yards and at least 70 feet of wall was poured daily.



detail drawings of form ties



TYPE ❶



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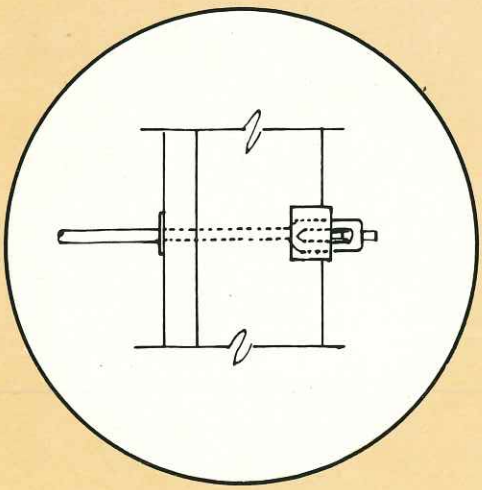
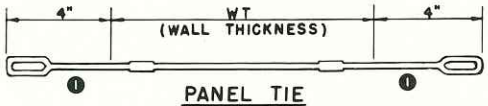
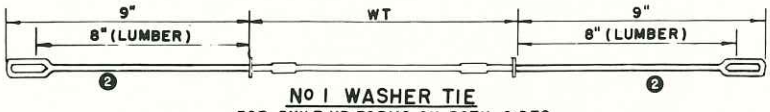


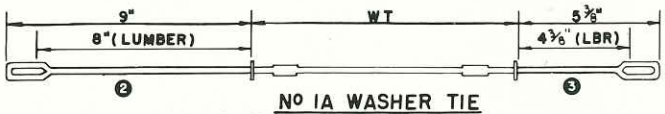
TYPE ❸



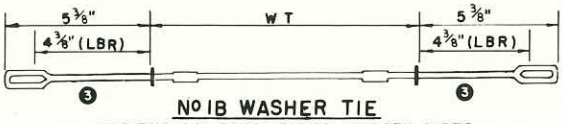
PANEL TIE
FOR SYMONS WOOD PANEL FORMS



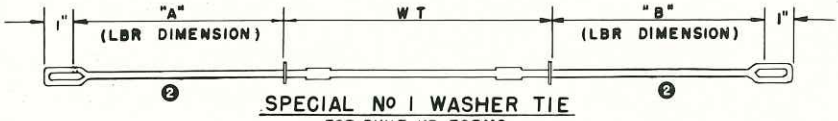
NO 1 WASHER TIE
FOR BUILT UP FORMS ON BOTH SIDES



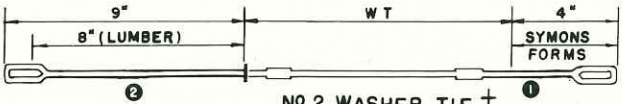
NO 1A WASHER TIE
FOR BUILT UP FORM OPPOSITE TYPICAL PANEL FORM



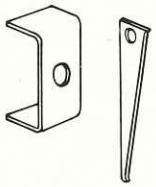
NO 1B WASHER TIE
FOR TYPICAL PANEL FORMS ON BOTH SIDES



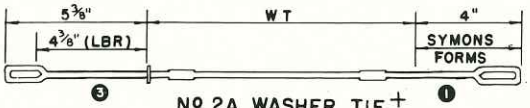
SPECIAL NO 1 WASHER TIE
FOR BUILT UP FORMS



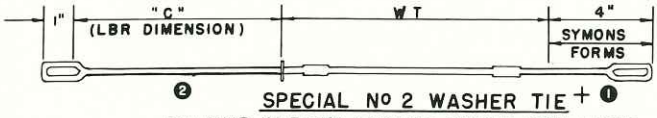
NO 2 WASHER TIE +
FOR BUILT UP FORMS OPPOSITE SYMONS PANEL FORMS



WALER PLATE & WEDGE



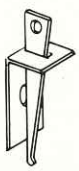
NO 2A WASHER TIE +
FOR TYPICAL PANEL FORMS OPPOSITE SYMONS PANEL FORMS



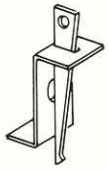
SPECIAL NO 2 WASHER TIE + ❶
FOR BUILT UP FORMS OPPOSITE SYMONS PANEL FORMS

SHORT CONNECTING BOLT

+ LOOPS ARE PERPENDICULAR TO EACH OTHER

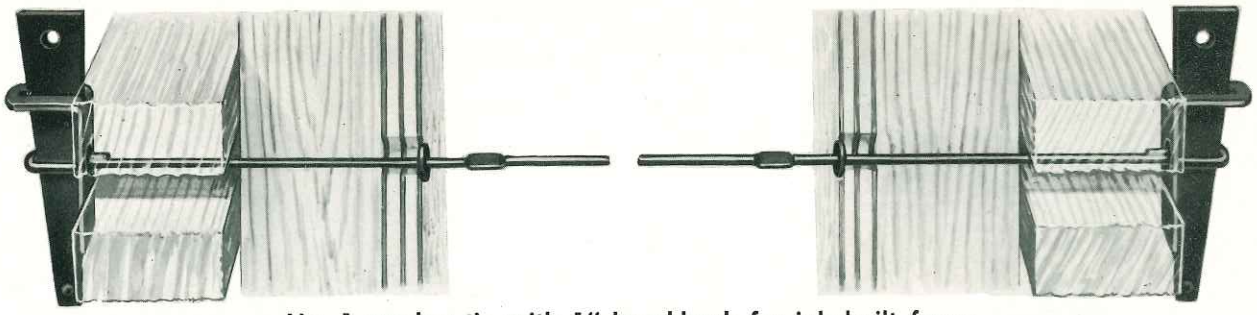


ONE PIECE TIE HOLDER



"Z" TIE HOLDER

SINGLE WALER CLAMP



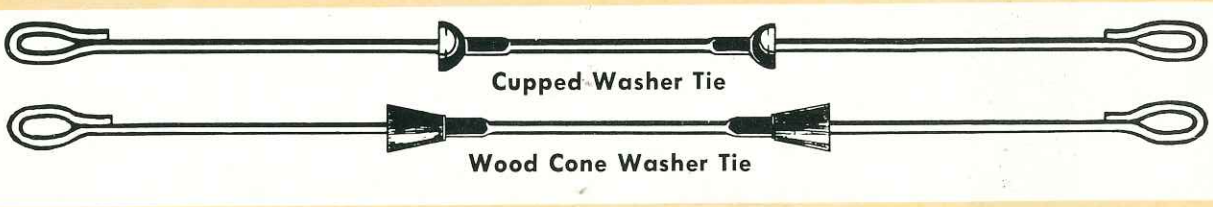
No. 1 washer tie with 1″ breakback for job-built forms.

WASHER TIES

Washer Ties are made of number 4 high carbon spring wire. They have a tensile strength of over 4,000 pounds and a safe working load of 3,000 pounds. Symons standard form ties can incorporate the features of the above ties and panel ties into a common tie when necessary (See page 22).

The One Piece tie holder, the "Z" tie holder or the Single Waler Clamp can be used to secure waling and ties to the form work. The lower lip of the "Z" tie holder will support the lower member of a double 2 x 4 waler. The Single Waler Clamp is adaptable with Symons forms as well as built-up form work.

Z Tie Holder



Cupped Washer Tie

Wood Cone Washer Tie

Single Waler Clamp

BAR TIES AND TIE CHAIRS

Symons bar ties and tie chairs are made of high carbon spring wire and lock reinforcing bars rigidly together. Tie chairs are designed to keep the lower reinforcing steel ¾″ above the deck forms. Bar ties and tie chairs are manufactured in a variety of sizes. Ordinarily not more than two or three sizes are required for the various combinations encountered on a typical job. Savings of time and labor can be realized and a better job can be accomplished by the use of these accessories over the conventional method of tying steel.

BAR TIE SIZES

Size No. 0—For tying two intersecting bars, the combined diameter of which is not greater than ¾ inch, as follows: ¼ x ⅜, ⅜ x ⅜.

Size No. 1—For tying two intersection bars, the combined diameter of which is not greater than 1 inch as follows: ⅜ x ⅜, ½ x ¼, ½ x ⅜, ½ x ½.

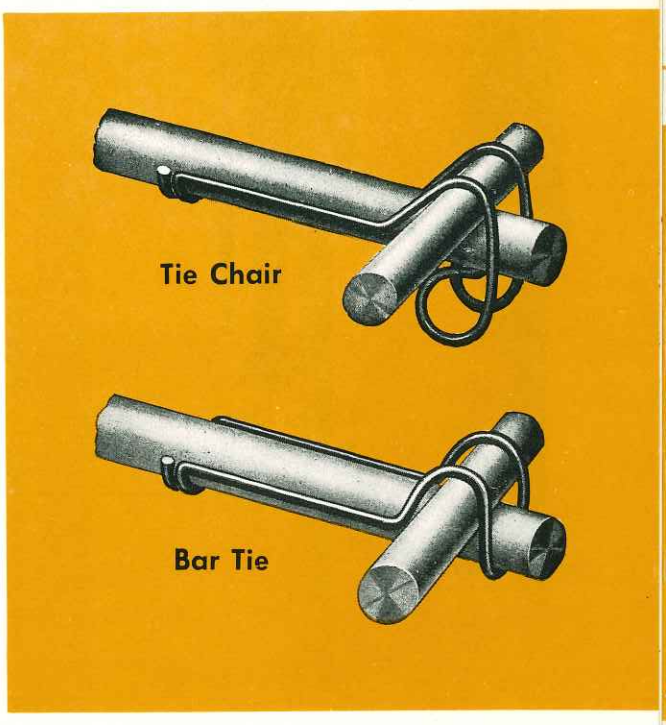
Size No. 2—For tying two intersecting bars, the combined diameter of which is not less than 1 inch nor greater than 1⅜ inches as follows: ½ x ½, ⅝ x ⅜, ⅝ x ½, ⅝ x ⅝, ¾ x ½, ¾ x ⅝.

Size No. 3—For tying any two intersecting bars, the combined diameter of which is not less than 1¼ inches nor more than 1⅝ inches, as follows: ¾ x ½, ¾ x ⅝, ¾ x ¾, ⅞ x ⅜, ⅞ x ½ ⅞ x ⅝, ⅞ x ¾, 1 x ⅜, 1 x ½, 1 x ⅝.

TIE CHAIR SIZES

Size No. 1—For tying and supporting any two intersecting bars, the combined diameter of which is not greater than 1 inch, as follows: ½ x ¼, ½ x ⅜, ½ x ½, ⅝ x ¼, ⅝ x ⅜, ¾ x ¼.

Size No. 2—For tying and supporting any two intersecting bars, the combined diameter of which is not less than 1⅛ inch nor more than 1⅜ inches, as follows: ⅝ x ½, ⅝ x ⅝, ¾ x ⅜, ¾ x ½, ¾ x ⅝, ⅞ x ⅜, ⅞ x ½, ⅞ x ⅝.



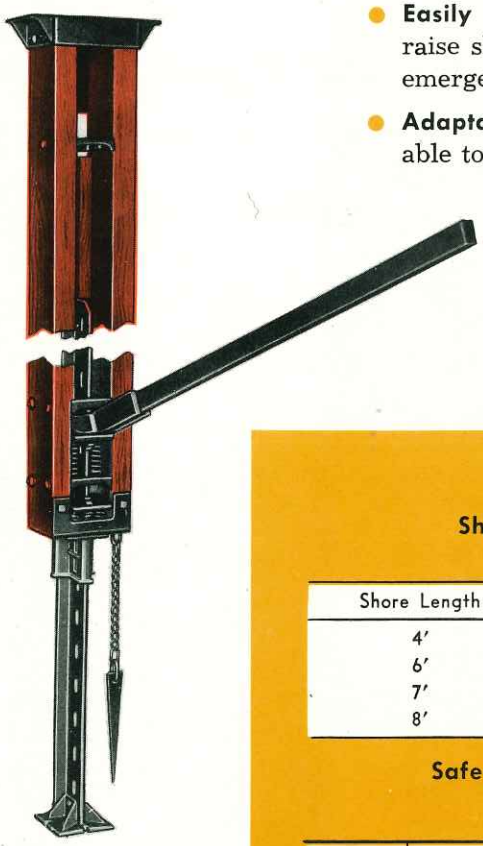
Tie Chair

Bar Tie

safety shore load capacity 6,000 pounds

Safety Shore

Safety Shore with Metal Scab Extended



Safety Shore with Lifting Jack

CUT COSTS ON ALL SHORING JOBS

Symons Safety Shores keep all shoring jobs moving on a time saving, cost cutting schedule. Here are some of the advantages offered by the time proven Symons Safety Shore —

- **Safer** with a wedge that takes the load and insures positive locking. The safety shore is tied and reinforced its full length. Safer because ribbon and sway bracing can be firmly secured to WOODEN side members.
- **Economical** with METAL SCAB that firmly secures to stringers. Saves on time and lumber. Economical because Safety Shores are simple to set up and easy to remove.
- **Quickly Adjustable** to any fraction of an inch, Safety Shores provide exact dimensions from 4'6" up to 23' with extensions.
- **Lighter** by 10 to 15 lbs. than other comparable shores, yet load capacity is equal or greater — a maximum of up to 6,000 lbs.
- **Easily Lifts** up to 1,500 lbs. with patented jacking device. Ideal to raise slab or beam forms quickly to the proper elevation. Ideal for emergency reshoring when necessary.
- **Adaptable** for beams by use of quickly attached Tee Heads. Adaptable to high ceilings by means of Extensions.

Symons Safety Shores are available with a 90 day purchase option . . . rentals to apply on the purchase price.

SPECIFICATIONS

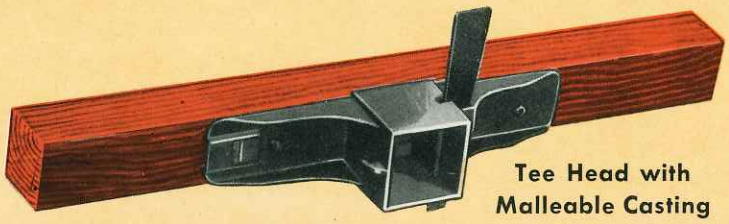
Shores are made in lengths of 4 ft., 6 ft., 7 ft. and 8 ft., and may be extended as per following schedule:

Shore Length	Length Telescoped	Length Extended	Weight
4'	4' 6"	7' 6"	40 lbs.
6'	6' 6"	11' 6"	48 lbs.
7'	7' 6"	13'	54 lbs.
8'	8' 6"	15'	60 lbs.

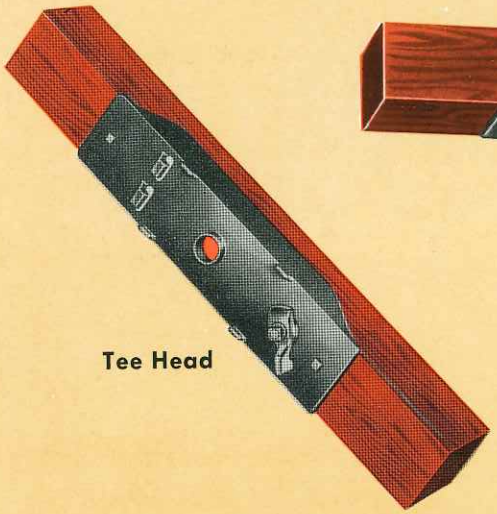
Safe load capacity extended to various heights without any sway bracing as per schedule:

Shore Length	Extended to following heights:							
	7' 6"	9'	10'	11'	12'	13'	14'	15'
4'	6,000 lbs.							
6'	6,000 lbs.	6,000 lbs.	5,500 lbs.	4,500 lbs.				
7'	6,000 lbs.	6,000 lbs.	6,000 lbs.	5,500 lbs.	3,500 lbs.	3,000 lbs.		
8'	6,000 lbs.	6,000 lbs.	6,000 lbs.	6,000 lbs.	4,000 lbs.	3,500 lbs.	2,500 lbs.	2,000 lbs.

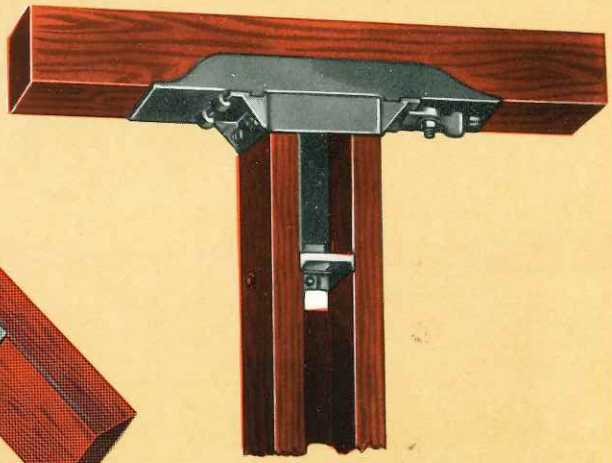
The above ratings may be increased 100% by proper bracing, except that maximum load at any height must not exceed 6000 pounds.



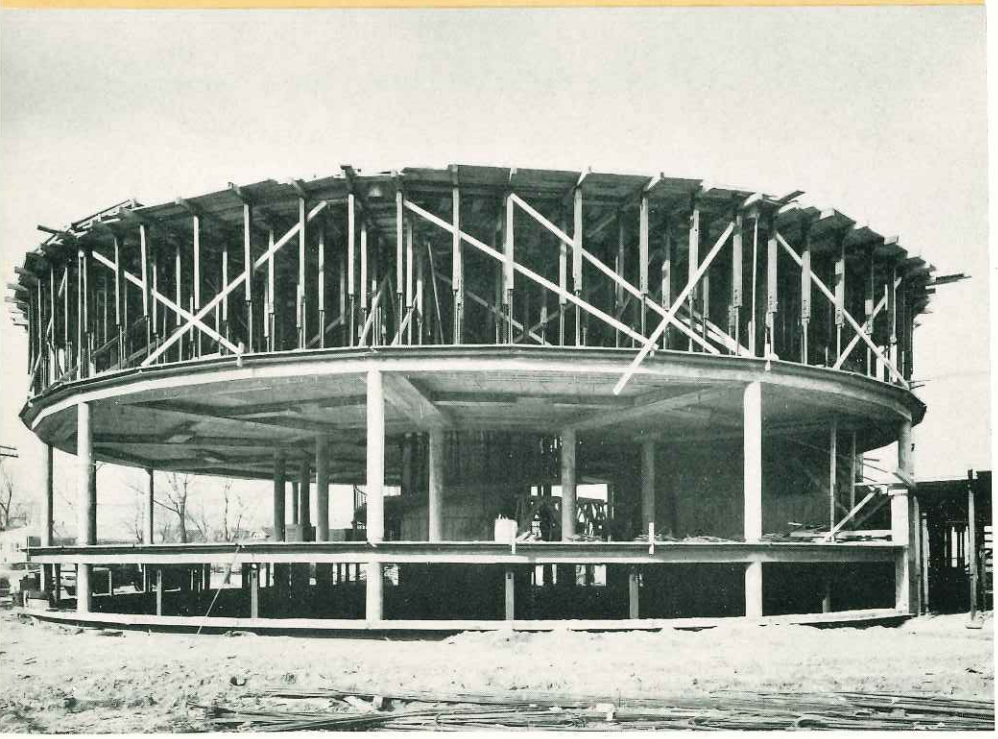
Tee Head with
Malleable Casting
for 4 x 4 Extension

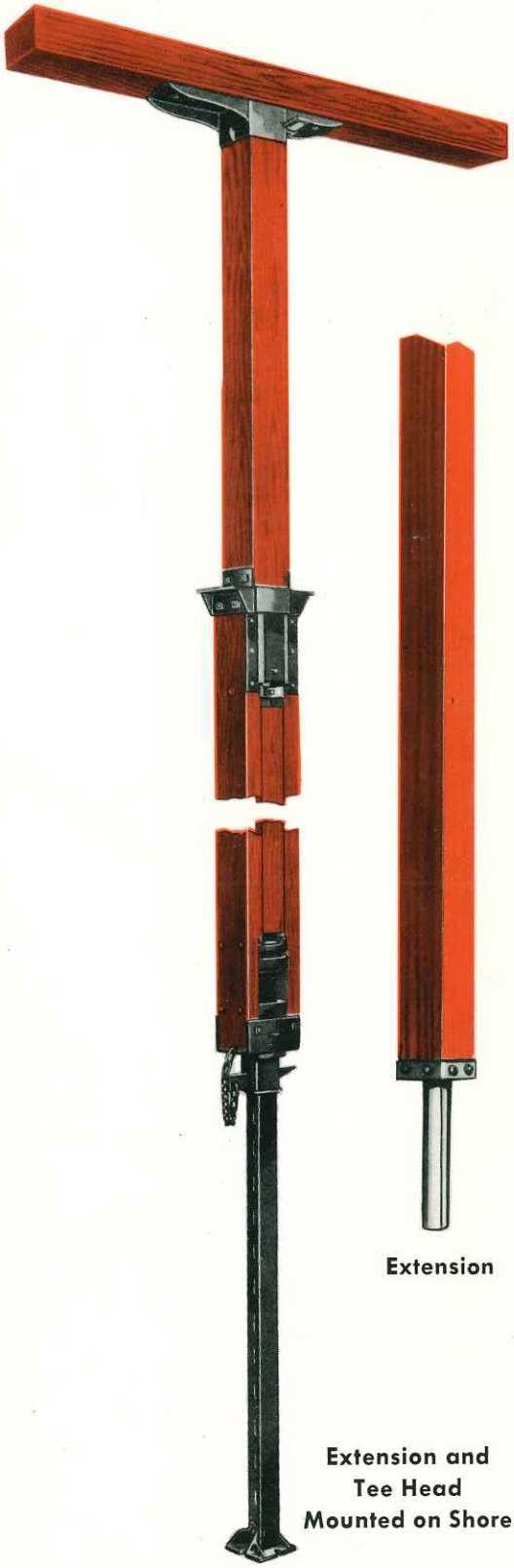


Tee Head



Tee Head Attached to
Safety Shore

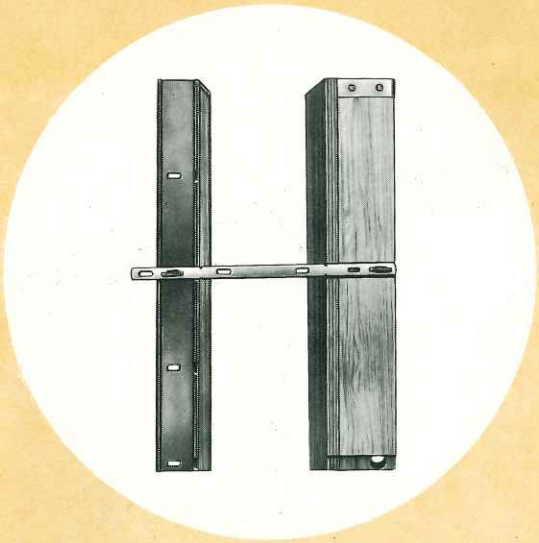




Extension

Extension and
Tee Head
Mounted on Shore

Symons flat ties and new culvert form



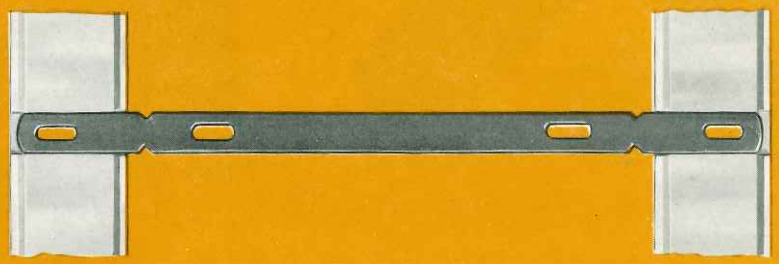
Wood and Metal Frame Forms Used in Combination with Duo-Tie

DUO-TIE

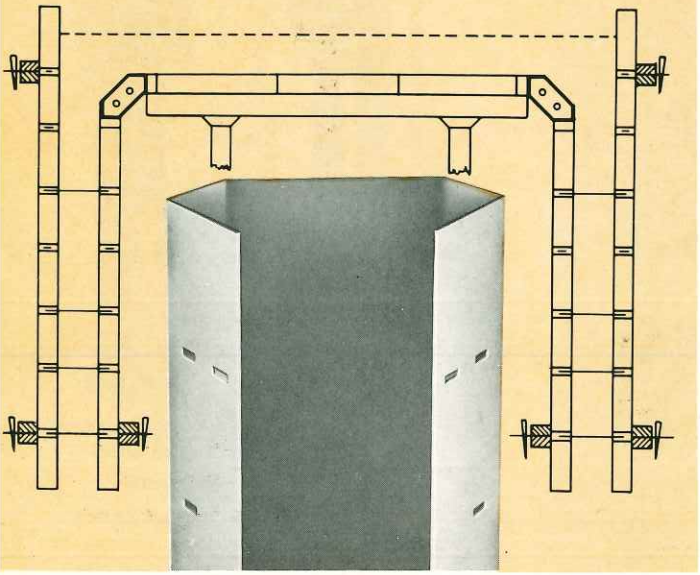
Symons duo-tie can be installed quickly and efficiently from the outside of a form. Its flat surface and slots create a solid bond with the concrete preventing any loosening of the tie when stripping the forms from "green" walls. The duo-tie fits snugly into the tie slot eliminating grout leakage. It is possible with the duo-tie to use wood and metal forms opposite each other. Contractors can use both types of form interchangeably and the cost of converting from one type of form to another is minimized.

S-M FLAT TIE

The Symons S-M flat tie is designed for use with Symons metal frame forms. Since the width of metal frame forms are only 2½", the S-M flat tie is shorter than the duo-tie. However, like the duo-tie, the S-M flat tie fits snugly into the tie slot and it is quickly installed from outside of the forms. In stripping, the S-M flat tie is easily broken back with two blows of a hammer.



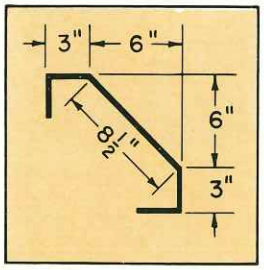
S-M Flat Tie Used with Metal Frame Forms



NEW CULVERT FORM

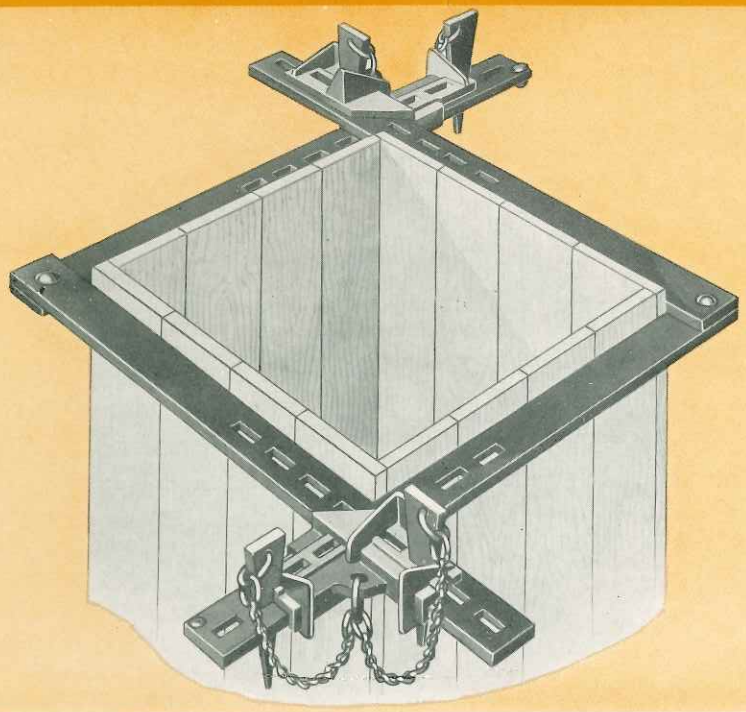
Symons new Culvert Form is designed to permit monolithic pouring on the walls and slab of a culvert. Adaptable to both Wood and Metal frame forms, the Culvert Form eliminates the need for costly building of special forms. Durable, it can be re-used indefinitely and only standard form hardware is needed for connection.

The Culvert Form is a 9" x 9" overall section and comes in lengths of 4, 6 and 8 feet. It provides for a 3" face on the roof slab and on the wall, and a 45° angled surface about 8½" wide between the wall and roof.



column clamps automatically accurate

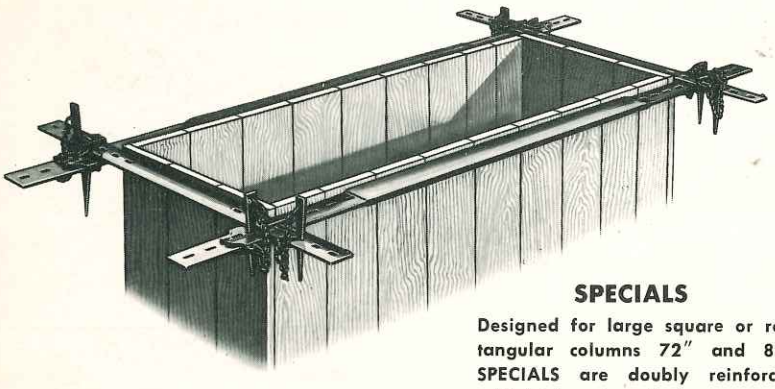
Symons



EVERSQUARE COLUMN CLAMP

- Positive 90° squaring of the column. One piece bracket has long bearing surface.
- Strong, yet light in weight. Bars of high carbon steel. Corner Brackets of malleable iron.
- Only two units—both alike. There are no detachable parts. Wedges are chained to brackets.
- Long range adjustments to the smallest fraction —no dead spots.
- Only tool required is a hammer.

Column Clamps can be rented with 90 day purchase option—paid rentals to apply on purchase price.



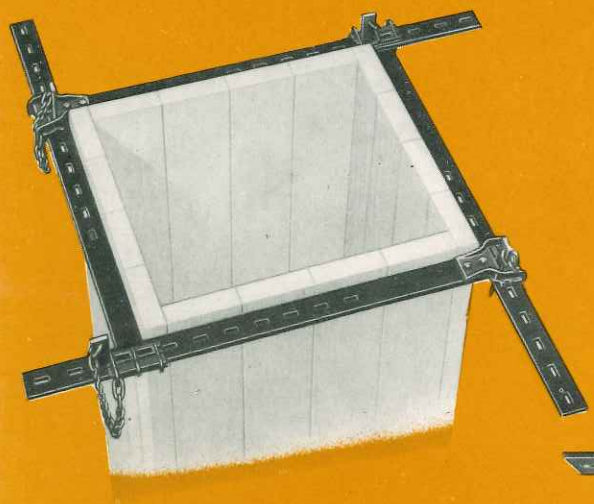
SPECIALS

Designed for large square or rectangular columns 72" and 84" SPECIALS are doubly reinforced with high carbon steel.

SIZES AND SPECIFICATIONS

Size of Clamps in Inches	Weights per set in Lbs.	Sizes of columns including forms (square or rectangular) in Inches	Arms made of high carbon steel 50-60 points carbon in Inches
Eversquare (2 hinged units per set)			
36	30	29 x 29 down to 10 x 10	2 x 5/16 x 36 long
48	45	40 x 40 down to 14 x 14	2½ x 5/16 x 48 long
60	80	50 x 50 down to 21 x 21	3 x ⅜ x 60 long
Specials (4 single arms per set)			
48 x 48	52	36 x 36 down to 10 x 10	48" Specials
48 x 60	70	36 x 48 down to 10 x 15	2½ x 5/16 x 48 long
48 x 72	83	36 x 60 down to 10 x 36	60" Specials
48 x 84	93	36 x 72 down to 10 x 48	3 x ⅜ x 60 long
60 x 60	88	48 x 48 down to 15 x 15	72" Specials
60 x 72	101	48 x 60 down to 15 x 36	½ x 3 x 30 center &
60 x 84	111	48 x 72 down to 15 x 48	⅜ x 3 x 21 long ends
72 x 72	114	60 x 60 down to 36 x 36	84" Specials
72 x 84	124	60 x 72 down to 36 x 48	½ x 3 x 42 center &
84 x 84	134	72 x 72 down to 48 x 48	⅜ x 3 x 21 long ends
Wall Clamps (2 single arms and 1 eversquare unit per set)			
36 x 36	30	29 x 29 down to 10 x 10	2 x 5/16 x 36" long
48 x 48	45	40 x 40 down to 14 x 14	2½ x 5/16 x 48" long

NOTE: Wall Clamps cannot be used with Special Clamps. 36" and 48" sizes are not interchangeable.

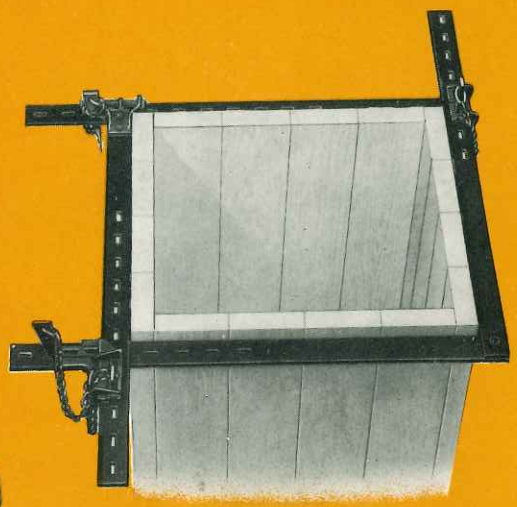


WALL CLAMPS

At right, two single bars and one hinged EVERSQUARE unit are combined for a WALL CLAMP. Note the one flat side which is ideal when forming columns in tight places. Shown below is the single arm bar.

4 PIECE CLAMP

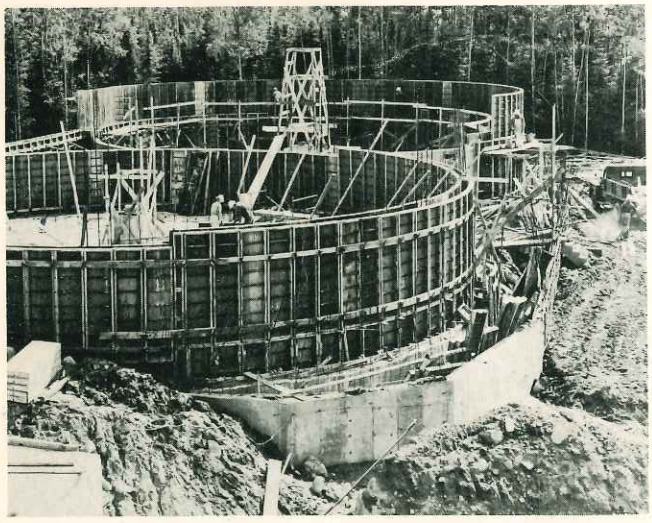
When necessary 4 single arm bars can be made up to form one clamp as illustrated on the left.



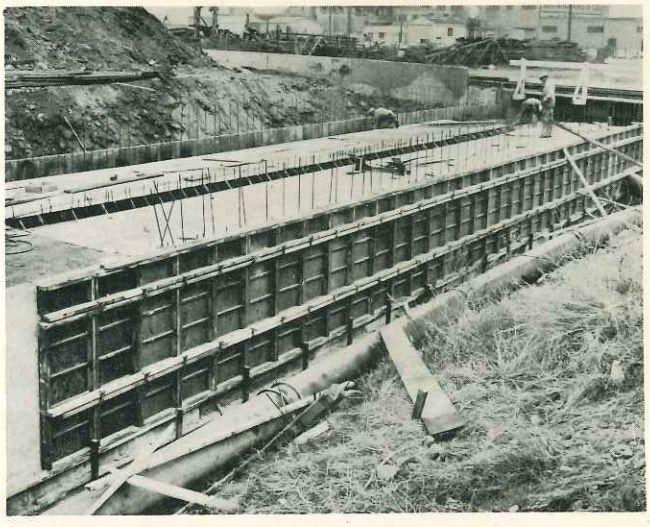
Symons products in use

HOUSING PROJECT, Roselle, Illinois, F & S Construction Company — Seven sets of wide panel forms used on 1,350 house foundations. About 6,000 square feet of Symons standard panels were used to construct the sewage system for the project.

OHIO RIVER INTAKE PLANT, Henderson, Kentucky, Roy Ryan Sons Company, Inc., General Contractor — 60,000 square feet of forming of structural concrete on the job. The walls started at 21 feet below the river pool stage and was topped at 47 feet above the water.



SEWAGE TREATMENT PLANT, Hoyt Lakes, Minnesota, J. S. Sweitzer & Son and Lovering Construction Company, General Contractors — Two digesters and two filter tanks with wall heights varying from 8 to 23 feet were formed with about 12,000 square feet of Symons Forms.



CULVERT EXTENSION, Emeryville, California, C. A. Gosset & Son, Castro Valley, General Contractors — Both Symons wood-ply and steel-ply forms were used for opposite wall set-ups to speed the pouring operation. Symons new Culvert Form was designed for this type of structure.

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